Exploring the needs, motivations, and identity of health science educators – A basis for improved support for university teachers

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Thesis for the degree of Philosophiae Doctor

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Rannsókn á þörfum, áhugahvöt og sjálfsmynd kennara í heilbrigðisvísindum – Grunnur fyrir betri kennslufræðilegan stuðning við háskólakennara

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Ágrip

Markmið: Í þessari rannsókn var rýnt í leiðir til að styðja kennara í heilbrigðisvísindum til kennsluþróunar, m.a. með það fyrir augum að efla gæði kennslu sinnar. Aðalmarkmið rannsóknarinnar voru: í fyrsta lagi að bera saman stundakennara og fastráðna kennara hvað varðar áhugahvöt, viðhorf, sjálfsmynd og þörf fyrir kennslufræðilegan stuðning; í öðru lagi að skoða afstöðu kennara til og notkun þeirra á ákveðnum þáttum í kennsluumhverfinu sem styrkja áhugahvöt nemenda, meðal annars til að greina áskoranir í því umhverfi; og í þriðja lagi að setja fram tillögur, byggðar á niðurstöðunum, um hvernig hægt væri að styðja kennara og háskóladeildir til að efla gæði kennslu.

Aðferð: Notað var blandað, skýrandi, raðsnið (sequential, explanatory mixed methods design) sem byggðist á umfangsmikilli megindlegri könnun og síðan rýnihópum. Í úrtakinu voru kennarar í heilbrigðisvísindum. Rafræn könnun var sett saman til að mæla áhugahvöt, viðhorf og sjálfsmynd, auk þess að meta þarfir kennara. Könnunin samanstóð af stöðluðum kvörðum, nýhönnuðum kvörðum og stökum atriðum. Markmiðið með rýnihópunum var að útskýra og dýpka megindlegu niðurstöðurnar og rannsóknarhugmyndafræðin byggði á gagnrýnikenningum (critical theory research paradigm). Fyrst var gerð greining á niðurstöðum úr kvörðum spurningalistans ásamt staðhæfingunum, með áherslu á samanburði á milli stundakennara og fastráðinna kennara. Því næst voru gögnin úr spurningalistanum notuð til að rannsaka hvernig upplifun á góðum tengslum (connectedness) á starfsvettvangi og því að vera metin(n) að verðleikum eða þakkað fyrir vel unnin störf (appreciation) spáir fyrir um sjálfsmynd kennara, ásamt opnum hug fyrir ígrundun og umbótum í kennslu. Notuð voru formgerðarlíkön (Structural Equations Modeling; SEM). Þá voru niðurstöður úr rýnihópum stundakennara greindar með tilliti til þessara sömu þátta til nánari skoðunar og dýpkunar. Í rýnihópunum var notast við viðtalsvísi sem var byggður á niðurstöðum úr könnuninni til að koma samtalinu af stað. Síðan voru niðurstöður úr könnuninni greindar með tilliti til styrkleika skoðana um og notkunar kennara á fimm þáttum sem hafa sterk tengsl við áhugahvöt nemenda til náms. Gögnin úr spurningakönnuninni sýndu að kennurum fannst þeir bera minni ábyrgð á notkun ákveðinna grundvallarþátta áhugahvatar í kennsluumhverfinu. Umræða um þau atriði fór fram í rýnihópum. Við greiningu á þeim gögnum var tekið tillit til þátta sem talið var að skiptu máli og gætu hafa haft áhrif á kennara svo sem persónulegra þátta (personal factors), tengsla (relational factors) og aðstæðna í umhverfi (environmental). Að lokum voru allar niðurstöður samþættar og tillögur settar fram um það hvernig hægt væri að veita kennurum aukinn stuðning.

Niðurstöður: Ýmislegt var líkt með fastráðnum kennurum og stundakennurum, svo sem svipuð upplifun á þörf fyrir ákveðna starfsþróun, sterk innri áhugahvöt til kennslu, afstaða byggð á gildum og skoðunum (identified regulated motivation), sterk sjálfsmynd kennara, og opinn hugur fyrir kennsluþróun. Hins vegar sögðu fleiri stundakennarar en fastráðnir kennarar að þeir hefðu viljað grunnkennslu í kennslufræði áður en þeir byrjuðu að kenna (45% vs 25% mjög sammála, p = 0.019) og fjarkennsluform (67% vs 36% líkleg eða mjög líkleg til að mæta í slíka kennslu, p < 0.001). Stundakennarar fundu jafnframt fyrir minni tengingu við HÍ (stundakennarar: meðaltal 3.2[SD:1.2] og fastráðnir: 3.8[SD:1.2], p < 0.001), og lýstu þörf fyrir að starf þeirra við að bæta gæði kennslu sinnar væri metið að verðleikum (stundakennarar: 4.6 [SD:0.9] og fastráðnir: 4.2 [SD:1.1], p = 0.01). Notast var við Likert skala 1-6, þar sem 1 þýddi mjög ósammála en 6 mjög sammála. Ólík formgerðarlíkön (SEM) varðandi mikilvægi tengsla á vinnustað og þá upplifun að frammistaða í starfi sé metin að verðleikum spáðu fyrir um sterka sjálfsmynd kennarans og opinn hug fyrir umbótum. Í líkaninu fyrir fastráðna kennara spáði sú upplifun að starf manns væri metið að verðleikum (appreciation) bæði sjálfsmynd (β = 0.50, p < 0.0001) og opnum hug til umbóta (β = 0.39, p = 0.06) og jafnframt spáðu góð tengsl (connectedness) á vinnustað fyrir um opinn hug til umbóta í kennslu (β = 0.23, p = 0.06). Í líkaninu fyrir stundakennara höfðu þættirnir að vera metinn að verðleikum og góð tengsl frekar veikt forspárgildi um sterka sjálfsmynd kennarans (β = 0.17, p = 0.06, β = 0.21, p = 0.03, í sömu röð). Í báðum módelum spáði sterk sjálfsmynd kennara fyrir um opinn huga til umbóta (fastráðnir: β = 0.31, p = 0.03, stundakennarar: β = 0.64, p < 0.0001) og fyrir stundakennara spáði það að upplifa góð tengsl fyrir því að hafa opinn huga til umbóta, miðlað af góðri sjálfsmynd. Við þemagreiningu á rýnihóp kom í ljós hversu ólíkar þarfir stundakennara í kennslustofu og stundakennara á klíník voru hvað tengsl, þörf á viðurkenningu á kennslu, aðgang að námsumsjónarkerfi og þörf fyrir markvissa starfsþróun varðaði. Þarfir þeirra voru þó að vissu leyti líkar, til dæmis hvað varðaði kynningu á starfi, samskiptum, endurgjöf á kennslu, og stuðning fyrir kennara í hlutverki sínu. Greining með blandaðri aðferðafræði sýndi að þátttakendum könnunarinnar fannst þeir ekki einir bera ábyrgð á tveimur grunnþáttum í kennslu sem hafa sterk tengsl við áhugahvöt, nefnilega að bjóða upp á valkosti í kennsluumhverfinu (51% sammála/mjög sammála) og að styðja nemendur í að trúa á eigin getu til náms (70% sammála/mjög sammála). Rýnihópar sem skoðuðu grunnþætti áhugahvatar vörpuðu ljósi á það hvernig persónuleg hræðsla, skortur á tækniþekkingu, skortur á tíma, skortur á grunnkunnáttu nemenda, takmörkuð endurgjöf frá samstarfsfólki og yfirmönnum og stórir nemendahópar höfðu áhrif á viðhorf kennara til þessara grunnþátta áhugahvatar.

Niðurlag: Niðurstöðurnar nýttust til að benda á leiðir til þess að styðja betur við kennara og háskóladeildir sem vinna að því að bæta gæði kennslu. Samanburður

á stundakennurum og fastráðnum kennurum varpaði ljósi á það sem var líkt og ólíkt með þessum hópum og sýndi um leið fram á mikilvægi þess að þarfir þessara hópa væru skoðaðar með samtali við stundakennarana sjálfa. Munurinn sem fannst milli fastráðinna kennara og stundakennara varðandi þörf fyrir tengsl og viðurkenningu gaf til kynna að sjálfsmynd þeirra væri ef til vill ólík og að sjálfsmynd stundakennarans gæti þróast. Niðurstöður rýnihópa stundakennara voru gagnlegar til að greina á milli þarfa kennara sem kenna hópum nemenda og kennara sem starfa í klíník; þá var sérstaklega þörfin fyrir tengsl (connection) og viðurkenningu (appreciation) sterkari hjá þeim kennurum sem kenndu nemendahópum í kennslustofu. Þótt kennarar teldu að þeir bæru ábyrgð á að styðja nemendur sína til náms með því að skapa hvetjandi kennsluumhverfi, þá sýndu niðurstöður könnunar og rýnihópa, að þeir töldu sig síður bera ábyrgð á ákveðnum grunnþáttum sem hafa sterk tengsl við áhugahvöt í kennsluumhverfi nemenda en öðrum þáttum. Þar komu til ýmsir hamlandi þættir úr starfsumhverfinu. Að lokum voru settar fram tillögur að úrbótum og auknum stuðningi, tillögur sem kennslumiðstöðvar og kennsluþróunardeildir háskóla geta nýtt sér í starfsemi sinni um hvernig hægt væri að styðja við fastráðna og stundakennara sem vilja bæta gæði kennslu sinnar. Ef kennarar finndu fyrir stuðningi til að mæta þeim áskorunum sem hindra þá í starfi og hlytu hrós eða þakklæti fyrir það sem vel er gert, þá gæti það ef til vill orðið þeim hvatning til að stunda kennsluþróun og bæta þannig gæði kennslu sinnar.

Lykilorð:

áhugahvöt, stundakennari, sjálfsmynd kennara, þarfir, gæði kennslu.

Abstract

Aims: In this research, the focus was on ways to support health science educators' efforts to improve the quality of their teaching within their specific contexts. The main aim was three-fold: to support sessional faculty (SF) by first exploring differences and similarities between SF and tenured faculty (TF) in the areas of motivations, attitudes, identity and needs; second, to explore educators' attitudes towards and applications of motivational principles, identifying contextual obstacles that educators encounter as they strive to motivate students; and third, to develop suggestions based on the results to support faculty efforts to improve their teaching.

Methods: A sequential, explanatory, mixed methods design with an extensive quantitative survey followed by focus groups was utilized, using a sample of health science educators. The online survey was developed to assess the motivations, attitudes, identity, and needs of health science educators, and consisted of validated scales, developed scales, and single items. The focus groups as qualitative measures were conducted to explain and deepen the quantitative results using a critical theory research paradigm. First, the survey scale and single item data were used for a comparative analysis to highlight the differences between SF and TF. Second, the survey scale data was used with structural equation modeling (SEM) to explore how a sense of connectedness and appreciation predicted educator identity and openness to improve for TF and SF. Third, an interview guide based on the survey results was used to trigger conversation in SF focus groups, which was followed by a thematic analysis of the results from the focus groups. Then, a mixed methods analysis for educators with a focus on motivational principles was performed. The survey data identified principles for which educators felt less responsible. Faculty focus groups then discussed the reasons behind this difficulty for accepting responsibility. Analysis of the focus group data took into consideration the relevant personal, relational, and environmental factors affecting educators. Finally, all results were integrated, and suggestions were made to support these various educators.

Results: Similarities in FD perceived needs, intrinsic motivation, actions based on values or beliefs (identified regulated motivation), identity as a medical educator, and openness to improve were identified when comparing TF and SF. However, differences were found in that SF preferred more pedagogy before starting to teach (45% vs 25% strongly agree, $p = 0.019$) and distance learning formats (67% vs 36% likely or very likely to attend, $p < 0.001$). Using a Likert scale where 1 stood for strongly disagree and 6 for strongly agree, SF felt less connectedness to the university (mean[SD]:SF = 3.2[1.2] and TF = 3.8[1.2], $p < 0.001$), and desired more appreciation for their efforts to improve their teaching

(mean[SD]:SF = 4.6 [0.9] and TF = 4.2 [1.1], p = 0.01). Different SEM models for connectedness and appreciation predicting identity as a health science educator and openness to improve were also found. The TF model had appreciation predict both identity (β = 0.50, p < 0.0001) and openness to improve (β = 0.39, p = 0.006) and had connectedness predict openness to improve (β = 0.23, p = 0.06), while the SF model had appreciation and connectedness weakly predicting identity (β = 0.17, p = 0.06, β = 0.21, p = 0.03, respectively). Both models had identity predict openness to improve (β[TF] = 0.31, p = 0.03, β[SF] = 0.64, p < 0.0001) and identity was a full mediator between connectedness and openness to improve for SF only. Thematic analysis of the SF focus groups identified the contrasting needs of classroom and clinical SF for connectedness, appreciation, access to the learning management system, and convenient and context-specific faculty development, while identifying similar needs for orientations, communication, feedback on teaching, and support for their educator role. The mixed methods analysis identified two motivational principles for which survey participants felt less responsible: offering choices (51% agreed/strongly agreed) and supporting students' belief in their own success (70% agreed/strongly agreed). The motivational principle focus groups explained how personal fears, lack of knowledge of helpful technologies, lack of time, lack of students' generic skills, limitations of peer feedback, and large classes affected educator attitudes towards these motivational principles.

Conclusion: This thesis added to the literature on possible ways to support faculty in their efforts to improve the quality of their teaching. The first aim, comparing TF and SF, made it possible to identify similarities and differences between them, reinforcing the importance of needs assessments and dialogue with SF. The differences seen in needs for connectedness and appreciation seemed to indicate that educator identity for SF is different and possibly similar to clinicians making the transition to academia. The SF focus groups helped differentiate the needs of classroom and clinical SF, exposing the need for more connectedness and appreciation for classroom SF. The second aim, exploring the needs of all educators as they strive to motivate students, made it possible to identify some factors that were affecting educator use of motivational principles and make suggestions to support these teachers. Finally, the information from all papers was then integrated to provide suggestions that can be utilized to inform FD, departments, and universities about possible ways to support both SF and TF in their efforts to be better educators. Addressing the issues that hinder faculty and celebrating the factors that motivate them may help them be better educators and possibly improve the quality of their teaching.

Keywords:

Motivation, sessional faculty, educator identity, needs, teaching quality.

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I still clearly remember the time that I met with Asta for the first time – it was like we were speaking the same language! I am thankful for her trust in me in taking me on as her doctoral student and for the countless emails and meetings where she demonstrated incredible patience in advising and encouraging me.

We also know that “no man is an island”. I want to thank my friends and family in Iceland and abroad who have encouraged me and supported me with words and in their prayers. And for my children, Aaron, Andy, and Mary, for supporting the “student identity” in their mom. I would be remiss if I did not mention my husband of almost 34 years, Curtis. Without your wonderful support and encouragement, this project would have never happened, so thank you, sweet Curtis. Lastly, I would like to thank God, who opened this door for me and who has sustained me through the journey. I trust that my work here will honor Him.

Contents

List of abbreviations

ABS – Asta B. Schram

AGS – Abigail Grover Snook (author of thesis)

AMEE – Association for Medical Education in Europe

AP – appreciation

CFA – confirmatory factor analysis

CFI - comparative fit index

CO – connectedness

CTL – Center of Teaching and Learning

FD – faculty development

ID – identification with teaching

IM – intrinsic motivation

IR – identified regulated motivation

PFDN – perceived faculty development need

PMTQ - Physician Motivation Teaching Questionnaire

PT – physical therapist

RMSEA - root mean square error of approximation

SAA – Solveig A. Arnadottir

SDT – self-determination theory

SEM – structural equation modeling

SF – sessional faculty

SHS – School of Health Sciences

SRMR - standardized root mean square residual

TF – tenured faculty

List of figures

List of tables

List of original papers

This thesis is based on the following original publications, which are referred to in the text by their Roman numerals (I-V [as needed]):

I. Snook, A.G., Schram, A.B., Sveinsson, T. and Jones, B.D. (2019). Needs, motivations, and identification with teaching: a comparative study of temporary part-time and tenure-track health science faculty in Iceland. *BMC Medical Education* 19, 349. doi:10.1186/s12909-019-1779-4

II. Snook, A. G., Schram, A. B., Jones, B. D. and Sveinsson, T. (2019). Factors predicting identity as educators and openness to improve: an exploratory study. *Medical Education*, 53: 788-798. doi:10.1111/medu.13909

III. Snook, A.G., Schram, A.B., and Arnadottir, S.A. "We have different needs": Specifying support for classroom and clinical sessional educators. Accepted for publication in *Medical Education* and Epub ahead of print on Feb 20, 2020. doi:10.1111/medu.14135

IV. Snook, A.B., Schram, A.B., and Jones, B.D. Identifying educators' skill needs and explaining factors affecting attitudes towards their responsibility for and application of motivational principles: a mixed methods study. Submitted for publication.

Declaration of contribution

The inspiration for this project was a joint vision with my advisor; we both desired to know more about the needs, motivations, and attitudes of the faculty at the School of Health Sciences. We both saw this information being vital to providing FD for these educators and to improving teaching quality.

I, personally, contributed to all the papers presented here in this thesis. Specifically, I was the main researcher for the following:

1) all aspects of the planning of the research, including ethics with the help of my advisor;
2) the literature review required for the survey development;
3) the writing of the drafts and final version of the survey with the help of my advisor;
4) the sending out of the email invitations for both the survey and focus groups;
5) the collection of quantitative data;
6) the analysis of the quantitative data (before and after statistical tests);
7) the planning and logistics of the focus groups;
8) the analysis of the qualitative data (after professional transcription);
9) the writing of the drafts and final versions of all papers, including all tables and figures, with incorporations of suggestions/revisions by co-authors;
10) the revisions required by journals on all papers, with incorporation of suggestions/revisions by co-authors;
11) the writing of the dissertation.

1 Introduction

1.1 Improving the quality of teaching

According to the new Strategies for 2016-2021, improving the quality of teaching and learning is a priority for the University of Iceland (University of Iceland, 2016b). Included as measures to address the prioity are the development of diverse teaching methods and improved pedagogical support for academic staff and the Center of Teaching and Learning (CTL). Responses to surveys of students at the University of Iceland School of Health Science (SHS) frequently document student dissatisfaction with the lack of diversity in teaching and assessment methods, especially an overemphasis on traditional lecture style (Rognvaldsson, 2016). The same priority of improving teaching is being adopted at universities all over the world as faculty are encouraged to increase innovation and to adapt to a new generation of learners with diverse learning needs (Pettit et al., 2017).

1.2 The role of faculty development

Improving the quality of teaching most often becomes the responsibility of CTL in the form of faculty development (FD). Steinert (2014) defines FD as, “all activities health professionals pursue to improve their knowledge, skills, and behaviors as teachers and educators, leaders and managers, and researchers and scholars, in both individual and group settings” (p. 4). Research on FD interventions has been shown to positively affect student learning (Condon et al., 2016). Although the teaching focus of FD in the past has primarily been on teaching various pedagogical skills (e,g,, writing rubrics, teaching methods), recently there has been more focus on considering the motivations of medical educators (Steinert et al., 2016) and exploring how FD can enhance a sense of educator identity (Lieff et al., 2012; Steinert et al., 2019).

One of the necessary functions of FD is the development of pedagogical skills. Needs assessments are considered part of best practice and are designed to ask what pedagogical skills the educators feel are most needed to improve their teaching (Behar-Horenstein et al., 2014; Bigbee et al., 2016; Huwendiek et al., 2010; Schönwetter et al., 2015). These skills are also known as perceived faculty development needs (PFDNs) and an important aspect is that the educator must perceive the skill as a need. Sorinola et al. (2017) argue that the way to motivate educators to learn skills in areas that need improvement is to make sure FD is aligned and relevant to the educator‘s needs. Therefore, an important task of CTL staff is knowing the PFDNs of its educators.

Educators' attitudes towards and applications of motivational principles in the classroom are not measured often in health science needs assessments but would be an important factor to consider with respect to improving teaching. Better teaching occurs when educators incorporate motivational strategies into their teaching (Jones, 2009). Another PFDN not measured often but with possible importance to effective change to teaching is reflective practice. Reflection integrates new learning into existing knowledge and skills (Mann et al., 2009). Along with other PFDNs, application of motivational principles, reflection, and diverse teaching methods are encouraged by FD staff as ways to improve teaching, student engagement, and student outcomes (Condon et al., 2016).

However, there also needs to be consideration of the values and motivations of educators. Authors of the Best Evidence Medical Education Guide on FD initiatives in the health sciences state that "the majority of (FD) interventions emphasized skill acquisition, often ignoring faculty members' motivations for teaching, values, and professional identities" (Steinert et al., 2016, pg. 78). Common values and motivations to teach expressed in the literature include the "joy of teaching itself", it is "who I am" (identity), giving back to the professions, wanting to keep learning, and the perception of teaching as an occupational duty (Dybowski & Harendza, 2014; Steinert & Macdonald, 2015). As FD interventions often encourage an educator to reflect on his/her teaching philosophy and then challenge their current teaching practices, FD interventions should build on the positive values and motivations that engage educators, while responding to their PFDNs by providing the knowledge and skills requested (Behar-Horenstein et al., 2014; Sorinola et al., 2017).

Newest in the FD literature is the increased interest in the importance of promoting educator identity in FD. An increased sense of identity as an educator is assumed to improve medical teaching (Stone et al., 2002). Authors of a systematic review identify several psychological processes as being required in the development of educator identity in the higher education context, including: a sense of appreciation, a sense of connectedness, a sense of competence, a sense of commitment, and imagining a future career trajectory (van Lankveld et al., 2017b). These authors point out that identity formation can be especially difficult in the health sciences as new educators find that their clinical expertise did not prepare them for their educator role. This difficult transition from clinician-expert to novice-educator can lead to feelings of self-doubt and inadequacy as an educator (Duffy, 2013; Hurst, 2010; van Lankveld et al., 2017b). Researchers in allied health and medicine describe the progression of becoming a health science educator in phases that take time as clinicians identify the complexities of teaching and take action to become better educators (Hurst, 2010; Murray et al., 2014; Riveros-Perez & Rodriques-Diaz, 2018). Another issue can be that,

although a health care professional's identities as clinician and researcher are well-supported by universities and hospitals, their identity as a health science educator may not be (Browne et al., 2017). One goal of FD should be to strengthen educator identity, as it is increasingly seen as central to the teaching profession (Rodgers & Scott, 2008; Steinert et al., 2016). Steinert et al. (2019) suggest that promoting educator identity is a key component to making faculty members feel valued, and to promoting participation in FD activities.

1.3 The challenge of sessional faculty in the health sciences

Up to this point, the issues raised for FD pertain to all educators that teach health science students. However, "an issue repeatedly in the literature on sessional teachers (adjuncts, casuals, contract, contingent, non-tenured track) is the role of academic development and professional learning for assuring and enhancing quality learning and teaching" (Harvey, 2017, p. 1).[1] Known as the "new faculty majority" (Fuller et al., 2017), research on SF has seen a growth in attention due to their prominence. Authors of a U.S. study report that 70% of all faculty hired are on a non-tenure track (Kezar & Maxey, 2014). Due to the heterogeneity of systems across Europe, percentages of non-permanent faculty are difficult to report in Europe. In the United Kingdom, the European University Institute (2018) reports that about 50% of faculty positions are fixed-term contracts. The University of Iceland (2016b) also prioritized support of SF as part of their strategy to improve teaching and learning.

Health science SF may be especially relevant due to the fact that health science students receive instruction in both the classroom and clinical setting, the latter almost exclusively from SF. Concerns about the quality of SF teaching are relevant because they generally receive little or no training in pedagogy (Bigbee et al., 2016; Buch et al., 2017; McCullough et al., 2015; Santisteban & Egues, 2014). Due to the variability in SF backgrounds, teaching abilities, and motivational levels for teaching, the quality of their instruction has been questioned and assumed to have a negative impact on student learning (Buch et al., 2017). Some researchers question whether the pedagogical needs of SF are being met (Buch et al., 2017; Knott et al., 2015; Pollart et al., 2015), especially in the areas of preparing to teach for the first time and ongoing training. Given their impact and numbers, SF need to be considered if the quality of teaching and learning is to be improved in the health sciences (Meixner et al., 2010). The specific challenges in FD for SF will be separately examined in each of the following sections.

[1] For the purposes of this thesis, sessional faculty (SF) are defined as healthcare professionals who are considered non-tenured and teach health sciences students directly in the classroom and/or clinic.

1.4 Determining perceived faculty development needs

Even if faculty developers desire to address educator PFDNs, there remains the need for faculty developers to explore and know what the educator‘s PFDNs are. Otherwise, FD will not be as effective and relevant to the educator (Behar-Horenstein et al., 2014; Sorinola et al., 2017). Need assessments are considerded essential and in the health sciences commonly call for PFDNs as well as format preferences for FD. One question is whether or not these needs assessments are reaching all faculty.

When considering SF needs, it is important that faculty developers ask for, even require, data on SF and seek their input into FD interventions (Harvey, 2017). Forbes et al. (2010) agree, writing that, in order to promote quality in teaching, it is imperative that SF needs are assessed and addressed as a necessary first step. However, a report by the Alliance for Academic Internal Medicine suggests that little information is available regarding the experiences, satisfaction and engagement of SF (Linzer et al., 2009). Most FD for SF seems based on informal conversations and teaching evaluations, rather than needs assessments (Drowos et al., 2017). A deficiency is seen in the lack of needs assessments of this “faculty majority”.

1.5 Determining motivations and identity of health science educators

Assessing motivations, values, and identity are not common in FD assessments of needs (Steinert et al., 2016). Lieff et al. (2012) identified factors related to educator identity among health science faculty, grouping them into personal (cognitive and emotional), relational (connections and interactions with others) and contextual (program itself and external work environment) domains. Given the different environments where SF and TF teach, there may be some differences in their teaching experiences, motivations to teach, and identity as health science educators. Although no comparative research could be located in the literature, such a comparison of TF and SF might help guide FD for each population more accurately and is seen as a gap in the literature. Faculty developers need to determine the unique professional needs of TF and SF using methods that explore contextual factors (i.e., personal, relational, and environmental factors), that may affect motivation and educator identity (Jolley et al., 2014). Otherwise, it is difficult to develop effective support for these populations of educators.

1.5.1 Personal factors

There are many factors related to the personal domain that can affect motivations and identities of educators. In this study, the impact of intrinsic motivation, fears,

identified regulated motivation (similar to professional values), and attitudes towards educator responsibilities were considered. It is important to realize that these personal factors can be affected by relational and environmental factors as well.

The highest form of self-regulation is known as a person's intrinsic motivation (IM)(Deci & Ryan, 2008). IM is part of self-determination theory (SDT), which was developed by Deci and Ryan. Part of IM is the desire to improve and explore (Ryan & Deci, 2000); therefore, it is assumed that educators with high IM will be open to improve their teaching. In contrast, an educator's fears of failure in teaching, or doubts in the abilities of their students, can act to diminish IM as the urge to seek new information and let ideas flow naturally is diminished (Putwain & Remedios, 2014). This can be reflected in a reluctance on an educator's part to change or improve the way they teach. Values are another important personal factor to consider as they are what an educator feels is personally important, often referred to as identified regulated motivation (IR) in SDT (Ryan & Deci, 2000). These values and beliefs become an integral part of an educator and can become an educator's reasons to teach. Statements such as "teaching is a healthcare professional's duty" or "my content matters" are common among health care professionals and reflect the importance of these values to educators (Dybowski & Harendza, 2014; O'Sullivan & Irby, 2014; Steinert & Macdonald, 2015). If educators were put in a position in which one of their values was being promoted and respected in a FD intervention, one might assume that the educators would be more motivated and engaged in the intervention.

Some studies report high IM among SF as well. SF in nursing describe their teaching work as 'positive' and 'rewarding' (Dixon et al., 2015) and SF hospital physicians describe 'the joy of teaching itself' (Dybowski & Harendza, 2014; May et al., 2012). The most common theme associated with a positive educator identity in physicians who teach medical students are feelings of intrinsic satisfaction from the teaching role (Starr et al., 2003). However, SF may be at higher risk for fears of failure and insecurity regarding their role as an educator, especially if they see their lack of training in teaching as a reason they are not as competent or cannot improve (Weimer, 2016). McCullough et al. (2015) report that clinicians identified a lack of confidence in their own teaching ability as one of major barriers to teaching medical students. Professional values (similar to IR) are mentioned often in the literature, regardless of whether the educator is a SF or TF (Dahlstrom et al., 2005; Dybowski & Harendza, 2014; May et al., 2012; Steinert & Macdonald, 2015). However, in a report from the Association of American Medical Colleges, SF reportedly feel that both their institution and their colleagues doubt their commitment and work ethic (Bunton & Corrice, 2011),

which may contribute to feelings of not being understood and deter efforts to improve teaching.

Another consideration when trying to improve the quality of teaching is the educators' personal attitudes towards their responsibilities as educators. These can be influenced by relational and environmental factors discussed below. It is important to know these attitudes and values as, when combined with participatory and reflective practice, faculty will engage in FD at a deeper level (Sorinola et al., 2017). It is generally assumed that it is an educator's responsibility to do what he/she can to motivate his/her students. More student engagement in learning, deeper learning, and higher achievement are all associated in theory and educational research with educators incorporating motivational strategies into their teaching (Jones, 2009). Motivational theories and principles (e.g., SDT, self-regulation theory, expectancy-value theory) are numerous, but may be difficult to apply for the average educator. They also do not attempt to explain all aspects of motivation in the learning environment (Cook & Artino Jr, 2016).

The MUSIC® Model of Motivation (henceforth referred to as the MUSIC Model) is designed to help educators integrate these theories and principles into the classroom environment. It is based on the analysis, evaluation and synthesis of motivation research and theories (Jones, 2009; Jones, 2018). MUSIC is an acronym for the five principles of the model that relate to eMpowerment, Usefulness, Success, Interest, and Caring. When applying the MUSIC Model in the classroom, teachers ensure that students: "M - feel empowered by having the ability to make decisions about some aspects of their learning; U - understand why what they are learning is useful to their short- or long-term goals; S – believe they can succeed if they put forth the effort required; I – are interested in the content and instructional activities; and C – believe that others in the learning environment, such as the instructor and other students, care about their learning and about them as a person" (Jones, 2016, p. 9). Researchers also utilize the MUSIC Model of Academic Motivation Inventory (Jones et al., 2017) to measure students´ perceptions of the MUSIC principles (Jones, 2018). The MUSIC Model has been researched and the accompanying Inventory validated for use with various student age groups, subject areas, cultures, and languages (Jones et al., 2017; Jones & Skaggs, 2016; Schram & Jones, 2016).

Although the application of these principles can be helpful to all types of educators and to their students, research on educators' attitudes towards motivational principles is scarce, especially in the area of autonomy in learning (Kusurkar & Croiset, 2015). Educators may be especially reluctant to consider implementation of these principles if they perceive constraints to implementation, such as lack of competence, time, and compensation (McCullough et al., 2015).

Implementing these strategies in the classroom may be especially challenging for SF due to their lack of pedagogical training and time (Weimer, 2016). Baldwin and Wawrzynski (2011) concluded that SF utilize significantly less learner-centered strategies when compared to TF. All these personal factors, among others, can affect educators' attitudes, their openness to reflection, and their willingness to improve or diversify their teaching methods.

1.5.2 Relational factors

Relationship factors mainly consider the educator in relationship to his/her colleagues, students, department and university, although these factors also include the relationship of the educator to society. A sense of relatedness is one of the central components of SDT (Deci & Ryan, 2008). Lieff et al. (2012) identify a sense of belonging, comparison with others, and the perceptions of others as sub-themes related to educator identity. Two of the five psychological processes (a sense of connectedness, a sense of appreciation) identified by van Lankveld et al. (2017b) as essential to educator identity can be considered relational. These may be of special interest to the needs of SF as they can work in many different working environments as educators (van Lankveld et al., 2017b).

First, a sense of connectedness is essential. A collegial and supportive work environment enhances educator identity through a sense of community while a competitive, hierarchal, or lacking in trust environment isolates educators and hinders identity development (van Lankveld et al., 2017b). Authors of a systematic review concluded that supportive relationships with other health science colleagues are reported in 30% of FD initiative studies (Steinert et al., 2016). The authors suggest supportive relationships as a form of community building, contributing to both individual and shared success in improving teaching methods. Although there is some evidence that teaching communities improve an educator‘s sense of connectedness (van Lankveld et al., 2017a), outcomes are still limited to the communities of practice that have been developed to engage faculty in hopes of improving teaching (Bond, 2015; Huwendiek et al., 2010; Schiekirka-Schwake et al., 2017; Valle & Fuchs, 2015).

SF may especially struggle with feeling connected to their university departments (Weimer, 2016). SF report that they feel isolated and disconnected from their university departments and colleagues (Buch et al., 2017). Not only do SF experience less connectedness, but a longitudinal study suggested these feelings ultimately increase over time and affect faculty identity negatively (Thirolf, 2013). For these reasons, SF may experience less connectedness and less educator identity than TF.

Second, a sense of appreciation is essential. Educator identity is hindered in a work environment where an educator feels his/her worth is questioned. In contrast, educator identity is promoted in a work environment where an educator feels valued (van Lankveld et al., 2017b). A need for recognition of high-quality teaching is mentioned commonly in the literature (Huwendiek et al., 2010; Schiekirka-Schwake et al., 2017); however, negative opinions persist within medicine about medical educators (Dybowski & Harendza, 2014; Sabel & Archer, 2014). Universities that continue to reward research more than teaching can limit an educator‘s sense of teaching appreciation (van Lankveld et al., 2017b).

SF commonly complain that they are not appreciated by their university/department for what they contribute (Huwendiek et al., 2010; Meixner et al., 2010; Starr et al., 2003). Hoyt (2012) reports that SF rate their perceived recognition as low, even though recognition is identified as a primary motivator for loyalty and satisfaction among SF. In addition, if the work a SF does as an educator is not acknowledged and supported at their clinical workplace, educator identity may not be supported (Elmberger et al., 2019).

Possible areas of interest to the faculty developer are the relationships between connectedness, appreciation, and identity as well as their impact on an educator’s openness to improve their teaching. As mentioned previously, authors of a systematic review conclude that the work environment can foster or hinder an educator’s sense of connectedness and appreciation, which then can affect their educator identity (van Lankveld et al., 2017b). An openness to improve teaching in SF is linked to educator identity (Stone et al., 2002) and TF report being comfortable trying new teaching techniques after an FD program strengthening their educator identity (Lieff et al., 2012). Therefore, I hypothesized that the model in Figure 1 represents the relationships between connectedness, appreciation, identity as an educator, and openness to improve. However, given the positive or negative effects of the work environment, it is not clear how the different experiences of connectedness and appreciation for TF and SF may impact this model. A gap in the literature exists in knowing how appreciation and connectedness predict educator identity and an openness to improve teaching in both TF and SF.

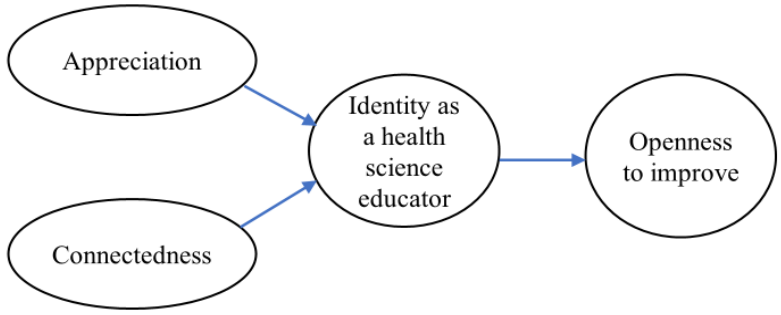

Figure 1. Hypothesized relationships between appreciation, connectedness, identity as a health science educator and openness to improve (H1). An educator's sense of appreciation and sense of connectedness will predict his/her identity as a health science educator, and identity will then predict an openness to improve teaching. Identity will act as a mediator between appreciation/connectedness and openness to improve.

1.5.3 Environmental factors

Environmental factors are also numerous, complex, and can affect all the factors discussed so far. For example, educators may feel less responsible to provide timely feedback to students as a motivational strategy if educators believe that a class is too large to do so efficiently. Another example is the lack of office space creating a sense of isolation for SF. O'Sullivan and Irby (2011) point out that the community created among FD program participants and the communities of practice formed in the classroom and clinic both have an impact on educator identity. As discussed in the *Relational factors* section, the work environment is one of the factors that must be considered if the goal is identity (Lieff et al., 2012). Also, within that work environment, there may be situations that are hindering or encouraging educators to improve their teaching. Therefore, faculty developers, departments, and universities should not just focus on the educator and relational needs, but also on the environment where that educator teaches. Some examples of possible contextual factors include, among others, access to mentors and FD, student abilities, knowledge of practical technology, and class size.

SF often feel marginalized by their institution and experience inconsistent support, making the transition from clinician to educator more difficult (Heffernan, 2018). According to qualitative studies, SF in the health sciences desire more

training in teaching methods prior to teaching (Bigbee et al., 2016; Buch et al., 2017; McCullough et al., 2015; Santisteban & Egues, 2014). Non-teaching support also needs to be considered. Other contexts that FD and administration may especially need to consider with SF is, among others, the place they teach (classroom and/or clinic), orientations, salary, awareness of mentors and FD, access to technology (including the learning management system), and communication channels.

1.6 Importance of research

Exploring the needs of faculty to improve teaching is important. Given the discussion above, I identified the following gaps in the health science literature, gaps that this research will attempt to address:

1) The lack of a needs assessment that assesses not only PFDNs but also motivations and identity among both TF and SF
2) The lack of knowledge about the differences between TF and SF in with respect to their motivations, pedagogical preferences, identity, openness to improve, and senses of connectedness and appreciation
3) The lack of knowledge of whether connectedness and appreciation predict educator identity and openness to improve in the same way for TF and SF, given that they practice in different working environments
4) The lack of knowledge of the real experiences of SF as educators and their needs for connectedness, appreciation, and support (pedagogical and non-pedagogical) from their university in the context of the classroom and clinic
5) The lack of knowledge of health science educators' highest PFDNs and if they are different for SF and TF.
6) The lack of knowledge of health science educators‘ attitudes towards their responsibilities to apply motivational principles in the classroom
7) The lack of knowledge of the various personal, relational and contextual factors that affect an educators‘ application of motivational principles in the classroom

I suggest that addressing these gaps in the literature will move FD and universities forward in their desire to improve the quality of teaching.

2 Aims

The aim of this study is to explore the motivations, attitudes, identity, and needs of health science educators, with a focus on ways to support their efforts to improve the quality of their teaching within their specific contexts. The primary foci are on SF and an educators' applications of motivational principles in their teaching. Both the fact that the majority of teaching is conducted by SF and the way educators apply motivational principles are likely to impact the quality of teaching in the health sciences. The rationale for this study is the results could guide FD, departments, and university administrations to be more effective in addressing the needs of SF and in encouraging all educators to incorporate motivational principles into their teaching. The following groups of questions are explored:

1) How are SF different from TF with respect to PFDNs, intrinsic motivation, values (identified regulated motivation), identity as an educator, needs for connectedness and appreciation, and openness to improve their teaching?
2) To what extent does a sense of connectedness and appreciation predict identity as a health science educator and an openness to improve teaching in SF? In TF? How might the context of the working environment explain differences between TF and SF in predictive values and models? (Figure 1)
3) What are SF experiences of and desires for connectedness, appreciation, and support (pedagogical and non-pedagogical) of their teaching? Are these needs the same for all SF or does the context of the classroom or clinic help explain differences?
4) Do health science educators feel responsible to apply motivational principles in their teaching?
5) What contextual factors encourage and discourage educators from applying certain motivational principles in their classroom?
6) Based on all findings, what recommendations can be made to FD, departments, and university administrations to support all educators' efforts to improve the quality of their teaching?

The questions above were addressed in the following Papers:

Paper I: The aim of Paper I was to inform FD for SF by comparing TF and SF using scales for intrinsic motivation, identified regulated motivation (values), identity as a health science educator, and needs for connectedness and

appreciation, using an online survey. Items measuring pedagogical preferences were also included.

Paper II: The aim of Paper II was to examine through the use of structural equation modeling (SEM) the extent that connectedness and appreciation predict identity as a health science educator (labeled as “medical educator” in Paper II) educator and openness to improve in TF and in SF using data from a survey. If differences between TF and SF models were seen, an additional aim was to speculate about the effect of the working environment as a reason for differences and make suggestions for addressing results.

Paper III: The aim of Paper III was to contrast classroom and clinical sessional faculty´s experiences of and perceived needs for connectedness, appreciation, and support, in relation to their teaching quality, and then utilize these results to make suggestions for supporting these educators.

Paper IV: The aim of Paper IV was to report the highest rated PFDNs of TF and SF and to determine which motivational principles educators felt responsible for applying in the classroom using a survey. The next aim in this mixed methods paper was to use focus groups to explore personal, relational, and contextual factors that affect educators use of certain motivational principles and to make suggestions based on the results.

Thesis aim: In addition to the aims of the above papers, this thesis also reported on the comparison between TF and SF with respect to openness to improve. The final aim of this thesis was to integrate the knowledge learned into concrete suggestions for SF, TF, and all educators that can possibly improve the quality of teaching.

3 Materials and methods

3.1 Research design and overview

In order to explain the "why" and "how" in FD research, a mixed methods design will be implemented (Steinert, 2017), using specifically a sequential explanatory mixed methods design (Creswell & Plano Clark, 2011), consisting of a survey followed by focus groups. This design was chosen because it explores the depth of information that comes from integrating differences seen in quantitative analysis with contexts explored during qualitative analysis. Figure 2 is an overview of the study design. Consistent with a critical theory research paradigm, all papers resulted in suggestions to improve the issues identified (Bunniss & Kelly, 2010). As a final step, the quantitative and qualitative data from all papers were integrated in this dissertation to develop ideas and suggestions for improving the quality of teaching.

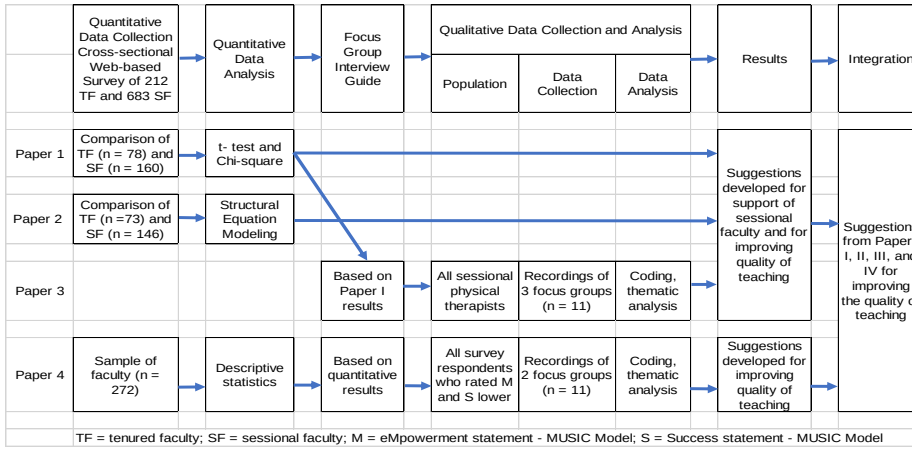

Figure 2. Explanatory mixed methods design showing progression from quantitative to qualitative results with integration. First, quantitative data were collected utilizing a web-based survey. The analysis of this data was utilized in Papers I and II to answer the first two research questions, involving the comparison studies between TF and SF. In addition, the survey analysis was utilized in Paper IV to answer the questions of the highest-rate PFDNs and the educators' attitudes towards their responsibility to apply motivational principles. Second, the results from the SF analysis comparison in Paper I and the results regarding attitudes towards motivational principles analysis were utilized to develop interview guides. Third, these interview guides were utilized in two sets of focus groups to collect qualitative data, which were analyzed using thematic analysis in Papers III and IV, respectively. The SF focus group analysis addressed the research question of the comparison of the needs of classroom and clinical SF in Paper III. The motivational principle focus group analysis was integrated with the quantitative results to form the mixed methods results of Paper IV to answer the question about the contextual factors that encourage or discourage the application of motivational principles.

3.2 Setting, population, and ethics

This study took place at SHS at the University of Iceland between May of 2017 and May of 2020. The health system is publicly funded through taxes with universal coverage (Sigurgeirsdottir et al., 2014). During the time of the study, the University of Iceland, a publicly funded university, enrolled around 12,300 students of whom 2300+ attended the School of Health Sciences (Facts and Figures, University of Iceland 2019). The educational system is similar to other Nordic countries, in agreement with the European Bologna Process, and generally students attend 13-14 years of school prior to entering their health science program (Nordic National Recognition Information Centres, 2019)

SHS consists of six faculties: nursing, pharmaceutical science, food science and nutrition, psychology, odontology, and medicine (which includes physical therapy, biomedical sciences, speech pathology, public health, and radiology). Students attend full-time programs lasting 3-6 years that end with a professional degree and certification to practice as a healthcare professional (Nordic National Recognition Information Centres, 2019). Of the 212 TF at the time of the study, 118 (56%) were with the medicine faculty, 31 (15%) were with the nursing faculty, 20 (9%) were with the odontology faculty, and the remaining were evenly divided among the remaining faculties (University of Iceland, 2016a) (See Table 1 in Results for more information). All TF had teaching responsibilities, most had earned PhDs, and 45% were women; however, no information was available regarding the average age of TF (University of Iceland, 2016a). In addition, there were approximately 1000 SF associated with teaching (classroom and/or clinical) through SHS (Dietz, personal communication), although no information was available about their distribution within faculties, gender or average age. The CTL offers a 30 credit pedagogical certificate program but participation in FD is voluntary for educators. FD for SHS is provided by the university's CTL and specifically by a faculty developer in a 70% position at SHS.

The National Bioethics Committee was informed about both the quantitative and qualitative parts of this project and indicated there was no need for their approval given the nature of the collected data. The project was announced to the Icelandic National Data Protection Authority that publicized the project as per Icelandic regulations (S8324/2017). All participation was voluntary on the part of the participants for both phases of the study and the researchers had no position of authority over the participants. The project was approved by the Faculty of Medicine at the University of Iceland and funded by the Doctoral Grants of the University of Iceland Research Fund and the University of Iceland Academics Affairs Fund (Teaching and Learning).

3.3 Study participants

3.3.1 Participants in survey

To answer the comparative TF/SF questions and the question about educators‘ responsibilites to apply motivational priniciples, large samples were required. All SHS TF were invited to participate in the survey (N = 212) through their publicly-available email addresses. Despite repeated efforts including contacting departments and payroll, only 651 valid email addresses of SF were available to use for invitations. In total, 863 faculty members were invited to participate (20% TF, 80% SF) in the online survey.

As a pilot study, an invitation was sent in October of 2017 to the email addresses of 400 of the 863 email addresses collected for both TF and SF. The reason for such a large pilot was due to the interest in confirming the reliability of the scales included within the survey (see *Survey development* below) and testing the scales' internal reliability. The main study followed in November-December 2017, with invitations sent to the remaining faculty members as well as the ones who had not responded to the pilot. Both pilot study and main study participants were recruited by first sending an invitation email followed up by three reminder emails. The invitation included information about the study, a code specific to that email address, and a link to the online survey.

The coding was used for three purposes: to be able to send reminder emails only to faculty members who had not participated, to distribute participation incentives ($20 gift card), and for purposive sampling in the qualitative phase of the study. The author of the thesis was the only researcher who had access to the codes and the codes were discarded after using for the above-mentioned purposes and were not part of the analysis. The faculty members were informed that, if they participated in the survey, this would serve as consent for participation in the study.

3.3.2 Participants in focus groups

To deepen the understanding of the needs of SF, a sample of SF was required. All SF who completed the survey (n = 160) became the convenience sample that were invited to participate in focus groups. They were identified through the survey codes linked to the email addresses. The invitation emails were sent out in October of 2018 and included a statement about the university's goals to improve the support of SF and that the group would discuss the results from the previous survey.

To investigate the factors that encourage or discourage educators to apply motivational principles, a sample of faculty who felt less responsible for certain

motivational principles was required. Purposive sampling within the sample of convenience formed by all faculty who completed the motivational principles' questions was utilized for the motivational principle focus groups. The quantitative data regarding motivational principles based on the MUSIC Model (see discussion on page 6, *1.5.1.2*) identified three principles for which educators felt strongly responsible and two principles where educators' agreement about their responsibility was not as strong. Within the sample who answered our survey, educators were identified according to who could address the differences documented in the quantitative results by examining their survey responses. Their email-specific codes were utilized to purposefully identify email addresses of approximately 140 TF and SF. These identified educators were invited via email in October of 2018 to participate in focus groups to discuss the results regarding the application of motivational principles from the previous survey.

3.4 Survey development and data analysis

3.4.1 Survey development

The Association for Medical Education in Europe (AMEE) Guide for developing questionnaires (Artino et al., 2014) was followed for the development of the survey. This included a literature review of theories related to faculty needs assessment and a review of recent surveys (Bigbee et al., 2016; Forbes et al., 2010; Schönwetter et al., 2015; van den Berg et al., 2013; Watts et al., 2015), which was synthesized with educator interviews into a survey in accordance with the AMEE Guide. Altogether, there were 96 rated statements followed by five demographic questions on the survey.

The survey included scales associated with constructs that had been validated and utilized in other research.[2]

- *Identification with teaching* (ID) is a 4-item scale, adapted from engineering, to evaluate identification with a profession (Jones et al., 2010). ID measures the extent to which an educator values their role and performance in teaching as an important part of self (Jones et al., 2015) and was utilized in Paper I to compare SF and TF identification with the teaching domain. This same scale was utilized to measure *identity as a health science educator* in Paper II.[3]

[2] For the purposes of this study, italics will be used when scales are used to measure the construct and no italics will be used if discussing the construct in general.

[3] Paper II refers to this scale as *identity as a medical educator* but defines "medical educator" as health science educator. This thesis will use the term

- *Intrinsic motivation* (IM) is a 4-item scale that is part of the validated Physician Motivation Teaching Questionnaire (PMTQ) (Dybowski & Harendza, 2015). IM is a construct within SDT where actions are done out of pure interest or joy (Deci & Ryan, 2008).
- *Identified regulated motivation* (IR) is a 3-item scale, also part of the PMTQ (Dybowski & Harendza, 2015). IR, also part of SDT, is considered close to IM, with actions based on personal values and beliefs. Many healthcare professionals associate IR with what are known as "professional values".

Both IM and IR were utilized as part of the comparison of SF and TF motivations in Paper I. All three scales, ID, IM, and IR, have demonstrated good or acceptable internal reliability (.84, .82, and .65, respectively) in past research (Dybowski & Harendza, 2015; Jones et al., 2010).

Three scales were also developed. They were based on a literature review that identified issues related to the relational issues of connectedness and appreciation, as well characteristics of educators open to improving their teaching:

- a 3-item scale of an educators' perceived *connectedness* with their department/colleagues (CO);
- a 4-item scale asking if the educator would be motivated to try a new teaching method by forms of *appreciation* (AP) (acknowledgment, financial compensation, supervisor feedback, improved student evaluations);
- a 3-item scale indicating the educator's *openness to improve* (OP) through reflective practice and use of diverse teaching methods.

OP was of interest due to the link between identity and openness to improve, which was part of the TF and SF model comparison explored in Paper II. CO and AP were utilized in Papers I and II for SF and TF comparisons.

The results from all six validated and developed scales were part of the basis of the interview guide developed for the focus group that explored SF experiences of connectedness, appreciation and support. A table that includes all the items included in the various scales is provided in the Results section. The participants in our survey rated all scales on a 6-point Likert scale (1 = "strongly disagree", 2 = "disagree", 3 = "somewhat disagree", 4 = "somewhat agree", 5 = "agree", and 6 = "strongly agree"). The participants had an option of "choose not to answer" which was not weighted.

"health science", referring to multiple health science disciplines, including medicine.

Also included in the survey were single items that measured the educator's perceived need for more pedagogy before starting to teach and the educator's attitudes towards their responsibility to invest time and energy to improve their teaching. These two items were part of the TF/SF comparison. To assess educator's perceptions of their responsibilities to apply motivational principles, five statements were included, one that represented each of the five motivation principles (eMpowerment, Usefulness, Success, Interest, Caring) in the MUSIC model (Jones, 2009). The educators were asked to what extent they agreed that their responsibility as an educator was to: (1) offer students choices in some aspects of their learning (eMpowerment); (2) explain how the learning process or subject material is useful to student goals (Usefulness); (3) provide feedback and organization to ensure students' perception of success (Success); (4) generate interest in the subject (Interest); and (5) communicate caring and respect for students and their goals (Caring). An additional five statements asked educators to rate how often they had applied these same motivating principles in their teaching within the last year. These 10 items (five perceptions of responsibilities to apply motivational principles and five applications of motivational principles in last year) were designed to answer the research question whether educators felt responsible for applying motivational principles in the classroom and how much they actually used them. All these single items were measured on the same Likert scale as the scales mentioned above.

A literature review was also used to gather a broad range of items that educators might identify as a needed teaching skill for a PFDN analysis. Participants rated the PFDN items on a 5-point Likert scale (1 = "no need", 2 = "very little need", 3 = "little need", 4 = "some need", 5 = "great need", and "not applicable" [no weight]). This information was utilized to answer the question of what were the highest rated PFDNs of all educators and also to compare TF and SF. The participants also rated their learning format preferences for FD, using a 5-point Likert scale (1 = "never"; 2 = "very unlikely"; 3 = "unlikely"; 4 = "likely"; 5 = "very likely"). They also indicated how many times they had participated in activities to enhance their teaching in the last year. Both of these items (learning format preferences and participation in FD) were utilized for the SF/TF comparison in Paper I.

There were other rated statements on the survey. They included: (1) other motivations to try a new teaching method; (2) other motivations to teach; (3) how much time they had to improve their teaching; and (4) current use of various teaching methods. However, these were not part of the analyses and are not included in this thesis.

Demographic information on the survey was required to determine type of teacher (SF, TF) for comparison studies and to demonstrate that the samples

utilized were similar to the population. At the end of the survey, the educators were asked to indicate the following: (1) what faculty within SHS were they associated with; (2) their faculty type (i.e., tenured, sessional who only teaches in the classroom, sessional who teaches in both the classroom and the clinic, sessional who only teaches in the clinic, other); (3) if they identified as a classroom sessional, how many hours a year they taught; (4) gender with option not to indicate; and (5) age group (i.e., < 40 years old [millennial], between 40 and 52 years old [generation x], and > 52 years old [baby boomer] (Dimock, 2019). (These age groups were used for a possible generational analysis, which is not part of this thesis.) A copy of the entire survey in English is available (Appendix) as well as a mapping of the research questions to the items that answered that question (Appendix). For the adaptation of the survey to Icelandic (Appendix), Villagran and Lucke (2005) guidelines were utilized for cross-cultural adaptation of the survey, as well as the Icelandic student version of the MUSIC Model of Academic Motivation Inventory (Schram & Jones, 2016).

3.4.2 Survey data analysis

Pilot testing of the survey identified no single item measures that were problematic due to the translation process and confirmed the internal reliability of all scales. To judge the internal reliability value, the following criteria was used: Cronbach's alpha values greater than 0.9 were excellent, between 0.7 and 0.9 were good, and between 0.6 and 0.7 were acceptable (Kline, 2005).Therefore, the pilot data were added to the main data collected for full analysis for the quantitative part of the study. Validity of the various scales was examined by looking at the support provided by the theory, data and logic of the proposed interpretations of the hypothesis (Downing, 2003). Statistically, validity was examined by considering the internal reliability, the confirmatory factor analysis (CFA), the correlation tables and factor loadings for the hypothesized relationships (H1). For all statistical analyses of final data, SAS 9.4 (SAS Institute Inc., Cary, North Carolina, USA) was utilized. The significance level was set at .05 throughout as is common in education and psychology research (Martella et al., 2013). The statistical data analysis utilized was dependent on the research question it was designed to answer.

3.4.2.1 Survey demographics

As the first two research questions compared TF and SF (see Figure 2), the survey data were only included for analysis if the faculty member had completed this information on the survey. The data for educators who identified as 'clinical only', 'classroom and clinical', and 'classroom only' SF were combined. The SF demographics were then compared to the TF demographics with respect to distribution by faculty discipline, gender, and age.

In addition, since participants in the survey had the option to choose not to rate statements within the scales, some of the data points were missing when they chose not to answer. This can be problematic when utilizing SEM for statistical analysis as was done when comparing SF and TF models in Paper II (Olinsky et al., 2003). Therefore, imputation was performed on the data when only one item was not rated from the scale but was discarded when two or more items on one scale were not rated. Twelve TF and 42 SF had missing data points, of which, five TF and 14 SF's data were discarded because they chose to not rate more than one item from the same scale. Imputation was then performed on the remaining data from seven TF and 28 SF, using the average of the other item ratings in that same scale as a substitution for the missing data point (Schinka & Velicer, 2003). The TF and SF demographic representation were then compared with respect to faculty discipline, gender, and age.

In Paper IV, the question was regarding the attitudes towards motivational principles of all educators. Therefore, the sample was a combination of both SF and TF and data were included if the faculty member had responded to the motivational principles' statements. The demographic representation of the reported tenured faculty was compared to the demographic representation of the motivational principle sample including all types of faculty with respect to distribution of faculty discipline, gender, faculty type (SF or TF), and age.

3.4.2.2 Comparison studies of TF and SF

To answer the question about the differences between TF and SF with respect to the scales for *identification with teaching* (ID), *intrinsic motivation* (IM), *identified regulated motivation* (IR), *connectedness* (CO), *appreciation* (AP), and *openness to improve* (OP), TF and SF responses to these scales were analyzed. Internal reliability of each scale was determined and compared to the published reliability if the scale had been validated before (*identification with teaching, intrinsic motivation, identified regulated motivation*). A total scale score was calculated for each of the six scales by summing the scale items, and then dividing the total by the number of items to determine the average scale score. Independent-sample t-tests were used to identify similarities and significant differences between SF and TF for the six scales. A two-way ANOVA was performed on all significant scales evaluating faculty type (TF or SF) and interactions with gender, age group, and faculty discipline.

To answer the question regarding how predictive connectedness and appreciation are of identity as a health science educator and openness to improve teaching, SEM was utilized to compare TF and SF models in Paper II. These constructs of connectedness, appreciation, identity, and openness to improve are measured using the scale results. SEM includes a measurement

model that allows relationships between variables (items) and constructs (scales) through CFA and a structural path model involving regression that relates constructs to other constructs (Iacobucci, 2009). The PROC CALIS procedure was utilized for conducting the CFA, using the maximum likelihood estimation method. This determines if the factors are distinct but related. The measurement model was tested for fit to the data for all faculty and then tested for fit with TF and SF subgroups individually. The standardized factor loadings of the CFA for the individually observed items associated with each distinct scale were calculated. This was followed by calculations of the reliabilities for each scale, along with the correlations with the other scales. Again, this was done with all faculty combined and in the subgroups of TF and SF. Subsequently, factor structure and model fit were tested, using the CALIS procedure for SEM with FACTOR model type and latent factor variances fixed to 1.0. The hypothesized structural model (H1 – Figure 1) was tested for faculty as a whole and for SF and TF individually. Fit indices using Chi-square and measures representing the three major index classes (i.e., absolute fit index, parsimonious fit index, and comparative fit index [CFI]) determined the acceptability of the data-model fit as represented by the CFI, the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA). According to Hu and Bentler (1999), model–data fit can be considered good if the CFI value is ≥ 0.95, SRMR value is ≤ 0.08, and the RMSEA value is ≤ 0.06. Other models using the same constructs in differing relationships were also estimated to determine if H1 was the best fit for each faculty type (TF, SF). Finally, it was determined if the scale for *identity as a health science educator* was a mediator between *connectedness*, *appreciation* and *openness to improve* (Sobel, 1982) for both TF and SF.

3.4.2.3 Comparing items – TF/SF and motivational principles

For the comparison of SF and TF needs, the statements regarding the educator's perceived need for more pedagogy before starting to teach and the educator's attitudes towards their responsibility to invest time and energy to improve their teaching were examined. It was required to combine the "strongly disagree", "disagree", "somewhat disagree", and "somewhat agree" statements into one category to avoid cells with less than five responses in the Chi-square test for both statements (Gravetter et al., 2016). The educator's preferred FD format was also compared between SF and TF and required the combination of "likely" and "very likely" scores into one category and "never", "very unlikely", and "unlikely" scores into another category for the same reason. Finally, the number of times the educator had participated in activities to enhance their teaching in the last year was compared for TF and SF. Chi-square values were calculated to identify differences between SF and TF for these single item measures. A 2-way ANOVA

was performed on all significant items evaluating faculty type (TF or SF) and interactions with gender, age group, and faculty discipline.

Descriptive statistics were used to answer the question of what were the highest-rated PFDNs for SF and TF individually and as a combined group. When determining PFDNs, “no need,” “very little need,” and “little need” responses were combined and “some need” and “much need” were combined. Descriptive statistics were also utilized to analyze the educators’ attitudes towards their responsibility to apply motivational principles. To determine differences in responses to both responsibility and application statements about motivation principles, the percent of participants who agreed or strongly agreed was reported as this was felt to indicate a willingness to consider implementing. This was done for the faculty as a whole and for the subgroups of TF and SF.

3.5 Focus group data collection and analysis

To answer the research questions about the contextual factors that affect educators’ applications of motivational principles and the experiences of SF, a qualitative approach was required. Focus groups were utilized to gather different participants’ experiences and capitalize on their communication with each other (Stalmeijer et al., 2014). As can be seen in the research design overview (Figure 2), there were two separate educator groups of interest: all faculty attitudes towards the MUSIC motivation principles and SF experiences. Therefore, two separate qualitative arms were pursued as parts of this mixed methods study. Both qualitative studies utilized a critical theory research paradigm. The studies were designed so that the voice of the educator could be heard and utilized to make changes for the better (Bunniss & Kelly, 2010). In both research studies, an inductive thematic analysis approach was utilized with open coding, creating themes to identify, analyze and report patterns within data (Braun & Clarke, 2006; Elo & Kyngas, 2008).

3.5.1 Focus groups on educator attitudes towards motivational principles

The focus group participants were recruited as described in section 3.3.2. Two focus groups, conducted in Icelandic, took place in November of 2018 at the University of Iceland involving 11 faculty members in total. Both group meetings took place in a neutral university building after working hours. The focus group participants signed consent forms, acknowledging their voluntary participation and that the proceedings would be audio-recorded and de-personalized before being presented in any form.

The facilitator of the groups was experienced in leading focus groups, was associated with the School of Education within the university and was unknown

to our focus group participants. She was generally unfamiliar with the SHS system and context where most of teachers taught. The thesis author (AGS) and thesis advisor (ABS) served as assistants/observers, have backgrounds in FD, and were generally not known by the focus group participants. ABS had completed her doctoral work validating the MUSIC Model in Icelandic. AGS was primarily responsible for coding and determining themes and has not published qualitative work previously. ABS has published mixed methods research (Schram, 2014) and provided guidance and confirmation of codes and themes. Both AGS and ABS are bilingual in English and Icelandic with English being AGS's native language and Icelandic being ABS's native language.

An interview guide was developed by AGS and ABS to gain a better understanding of the survey responses. It was based on the results from the quantitative section of the survey that asked about responsibility for motivational principles. This was done to stimulate discussion in the focus groups that could address the question regarding contextual factors that encourage and discourage the application of motivational principles. The facilitator introduced the quantitative results from the study. She then utilized questions from the interview guide to help the participants interpret the results. Both personal and contextual factors were explored. The interview guide is available in Paper IV. The audio recordings were transcribed with inclusion of vocal inflections (e.g., hesitations, silence, laughter) by a professional service.

AGS utilized thematic analysis to code the responses (i.e., generating initial codes, collating into subthemes, combining into main themes, and extracting examples of quotes) (Braun & Clarke, 2006). When no new information was evident from inductive analysis, AGS assumed that the major themes had been identified and that saturation was achieved. The major codes and themes were verified by ABS who also had access to the transcriptions. ABS and AGS identified representative quotations for each of the themes and utilized an independent bilingual expert to translate them from Icelandic to English. Themes were also utilized to develop suggestions for FD, departments and universities to address these factors.

3.5.2 Focus groups with sessional faculty

The focus group participants were recruited as described in section 3.3.2. Three focus groups, conducted in Icelandic, took place in November of 2018 at the University of Iceland. All three focus group meetings took place in a neutral university building after working hours. All participants signed consent forms that indicated that the focus group proceedings would be recorded, transcribed by a professional service, and depersonalized with only AGS and ABS having access to the raw data.

AGS was minimally known by some focus group participants and was present at the focus groups as an observer, but occasionally contributed to the conversation. She is a physical therapist (PT) and has experience as both a TF in the past and as a SF currently, both at the University of Iceland. ABS, who is an assistant professor and the faculty developer for the School of Health Sciences, facilitated all the focus groups, and was not known or minimally known by participants as her main experience had been with TF. ABS also works for the CTL and was accompanied by a co-worker from the CTL who acted as an assistant facilitator, also not known by participants. The third author of Paper III (SAA) is an associate professor in the department of physical therapy at the university, is known by most participants, and did not attend the focus groups but provided assistance during analysis. SAA is bi-lingual in English and Icelandic with Icelandic as her native language.

AGS and ABS developed the interview guide, which was based on the results from Paper I. It consisted of the survey results and questions to initiate or facilitate the discussion of the results. (The interview guide is available in Paper III.) This was done to stimulate discussion in the focus groups that could address the question regarding the experiences of and needs for connectedness, appreciation and support by classroom and clinical SF. At the beginning of the focus group session, participants were asked whether they taught in the classroom, clinic, or both. If they taught in the classroom, they were asked to what extent. The facilitator was conscientious to make sure that all participants had an opportunity to express their opinions and thoughts. All data were audio-recorded and transcribed verbatim by a professional transcriber with inclusion of vocal inflections (e.g., hesitations, silence, laughter).

The majority of participants were from the physical therapy (PT) department and so it was decided to exclude the data from other departments during analysis. AGS performed thematic analysis (Braun & Clarke, 2006), while noting whether the quote came from an educator who taught in the classroom and/or clinic. AGS determined saturation (no new themes identified) over the process of the three focus groups and ABS confirmed the themes and use of quotes based on the transcriptions and her experience as facilitator. SAA was given access to the de-identified recordings and transcriptions to analyze them independently as a form of investigator triangulation (Carter et al., 2014). The purpose of this was to confirm the initial findings and saturation, to note any subtleties or vocal inflections missed in the language, and to provide contextual information regarding the PT department. AGS, SAA and ABS then integrated our findings to produce the results. The quotes were translated to Icelandic by an independent bilingual expert and the translation was confirmed by SAA. Themes were divided into ones specific to classroom SF, ones specific to clinical SF, and those similar

to both classroom and clinical SF. Themes were also utilized to develop suggestions for FD, departments and universities to address the needs of classroom and clinical SF.

3.6 Integration of data with recommendations

Referring to Figure 2, the final step conducted was the integration of the quantitative and qualitative data. The purpose of using an explanatory mixed methods analysis is based on the idea that the information from the survey (quantitative) provides information as does the information from the focus groups (qualitative). Together there is a richness and depth of information that could not be appreciated without integration of the data (Creswell & Plano Clark, 2011). Integration of all Papers included in this thesis is part of the thesis discussion. As the critical design paradigm is focused on finding ways to make situations better, a list of integrated recommendations based on the results of this thesis was created. This was in response to the last research question which asked for recommendations for FD, departments and university administrations to improve the quality of teaching. Recommendations were separated based on the type of faculty and also indicated whether the recommendation would be the responsibility of the university, the department, and/or FD.

4 Results

4.1 Demographics

4.1.1 Demographics of survey participants

Table 1 includes the demographics for the Papers that included survey data. As mentioned previously, although there were over 1,000 SF at SHS, only 651 valid email addresses were collected. To be included in the comparison of TF and SF studies for Papers I and II, the participant was required to indicate his/her faculty type at the end of the survey. The sample size for the TF/SF model comparison using SEM in Paper II was smaller than Paper I due to missing data points in the scales. The sample size for Paper IV was larger than Paper I as the only requirement was that the participant had rated the motivational priniciples statements.

As can be seen in Table 1, the distributions across the papers using the survey data were similar. There was a similar ratio of TF to SF for all three Papers. The samples of TF in Papers I and II (62%) were more female than the university-reported gender distribution (45%) but similar in distribution across the TF faculty disciplines. A similar distribution was seen when comparing the TF and the SF samples in Papers I and II across faculty disciplines in the larger departments of medicine and nursing; however, our SF samples were more female, younger, and slightly less representative of the smaller departments than our TF samples. The combined sample of TF and SF for Paper IV was also more female than the university-reported TF distribution but similar to the TF sample distributions in Papers I and II. Although these differences were seen, the results from two-way ANOVAs indicated that neither gender nor age affected the significant results reported in this thesis. No conclusions as to whether the SF samples were representative of the SF population could be made as the only information collected on the SF population was email addresses.

	All papers		Paper 1		Paper II		Paper IV
	All TF N=212	SF emails N=651	TF n=78	SF n=160	TF n=73	SF n=146	TF + SF n=272
Female	45%	-	62%	71%	62%	70%	57%
Medicine faculty	56%	-	54%	66%	56%	64%	58%
Nursing faculty	15%	-	19%	22%	18%	23%	18%
Odontology faculty	9%	-	6%	2%	5%	3%	3%
N&FS faculty	6%	-	8%	1%	8%	1%	3%
Pharmacy faculty	6%	-	5%	4%	5%	4%	3%
Psychology faculty	8%	-	8%	5%	7%	5%	4%
> 52 years old	-	-	54%	38%	53%	39%	57%

TF = tenured faculty; SF = sessional faculty; All TF = total of School of Health Science TF reported by university website; emails = email addresses collected; F = female; Med = N&FS = Nutrition and Food Science; - = information not available

Table 1. Demographics comparing gender, faculty discipline, and age range across papers.

4.1.2 Demographics of focus group participants

To identify participants who could discuss encouraging and discouraging factors when applying motivational principles, a specific pattern in the survey responses of less agreement with eMpowerment and Success responsibility statements (rated “somewhat agree” or lower) when compared to Usefulness, Interest and Caring statements (rated “agree” or “strongly agree”) was used for purposeful selection within the sample of convenience created by all survey respondents. Participants were selected in this manner in order that participants would be representative of the findings shown in Figure 6. Two groups were formed (Group 1, n = 6; Group 2, n = 5) that mixed educators from different disciplines (medicine, n = 4; nursing, n = 2; physical therapy, n = 4; and nutrition, n = 1), gender (3 males, 8 females), age (1 < 40 years, 6 between 40 and 52 years, 4 ≥ 53 years) and type (8 TF, 3 SF).

To compare classroom and clinic SF needs, 11 PT SF volunteers participated in the SF focus groups. Of these, seven had experiences teaching both in the classroom and the clinic and four had experiences teaching only in the clinic. Of the seven classroom/clinic SF, the amount they taught ranged from 1 lecture a year up to parts of large courses over many years. Their age distributions were the following: 1 participant ≤ 40, 5 participants between 41 and 52, and 5 participants > 52 years of age. There were 9 women and 2 men. They had various specialties within the field of PT and practiced at various facilities (about half in hospitals and half in rehabilitation).

4.2 Survey results

4.2.1 Reliability and validity of scales

Table 2 includes the internal reliability coefficients, the scale name, and the items from each scale (note that this information on *openness to improve* scale was not reported in Paper 1.) All scales demonstrated good or acceptable internal reliability.

Table 2. Internal reliability of scales with items.

α	Scale name	Scale items
0.80	Identification with teaching (ID)	Success in teaching is very valuable to me
		It matters to me how well I do with my teaching
		Being good at teaching is an important part of who I am
		Doing well as a teacher is very important to me
0.86	Intrinsic motivation (IM)	I enjoy teaching most of the time
		I look forward to my next teaching most of the time
		During teaching, I am completely in my element
		Teaching enriches my job
0.80	Identified regulated motivation (IR)	I find the contents of my lesson important
	"I teach because…	I am convinced that it is a healthcare professional's duty to pass on his/her knowledge
		it's important for me to make my contribution to students becoming good healthcare professionals in the future
0.78	Perceived connectedness with department (CO)	Department members frequently share teaching methods they have found successful
		I feel connected to my department colleagues
		I have specific department colleagues whom I would look to for help if I wanted to improve my teaching methods
0.76	Motivated by appreciation (AP)	if I was financially rewarded for attending course and workshops on enhancing my teaching
	"I would be motivated to try a new teaching method…	if I received feedback from other teachers or my supervisor on my teaching
		if it improved my ratings on student evaluations
		if I was shown appreciation for enhancing my teaching methods
0.69	Opennes to improve (OP)	It is part of my responsibilities as a teacher to reflect on my teaching skills and how I can improve my teaching
		It is part of my responsibilities as a teacher to use a variety of teaching methods when teaching
		(In the past year of teaching) I reflected on my teaching skills and on how I could improve my teaching

The validity of the developed scales was established by the literature review, the theorized model (H1), the good or acceptable internal reliability, the distinct standardized factor loadings (Table 4), the correlations between scales (Table 5), and the good fit CFA (p. 31).

4.2.2 Differences and similarities in tenured and sessional faculty - comparison studies

Table 3 shows the independent t-test comparison between TF and SF for the scales utilized to examine differences between SF and TF with respect *to intrinsic*

motivation (IM), *identified regulated motivation* (IR)*, identification with teaching* (ID), *connectedness* (CO), *appreciation* (AP), and *openness to improve* (OP). All these results are reported in Paper I except the *openness to improve* scale comparison. Significant differences were seen between TF and SF with respect to CO and AP scales and these scales also had the most variability as seen in the standard deviations. The lowest mean for all the scales was the CO scale for SF, indicating a response of "somewhat disagree" (average 3.2). As can be seen, no differences were seen between TF and SF for the IM, IR, ID and OP scales. Average scale scores on these same scales were over five, indicating agreement or strong agreement.

Table 3. T-tests comparing average scale scores of tenured and sessional faculty.

	TF			**SF**				
Scale	M	SD		M	SD	DF	t	p
IM	5.1	0.7		5.0	0.8	234	1.43	0.23
IR	5.5	0.6		5.5	0.5	236	0.10	0.75
ID	5.5	0.5		5.5	0.6	232	0.56	0.45
CO	3.8	1.2		3.2	1.2	201	3.36	< 0.001
AP	4.2	1.1		4.6	0.9	209	6.07	0.01
OP	5.2	0.7		5.2	0.6	226	0.02	0.90

M = average score; SD = standard deviation; DF = degrees of freedom; TF = tenured faculty; SF = sessional faculty; IM = intrinsic motivation; IR = identified regulated motivation; ID = identification with teaching; CO = perceived connectedness; AP = motivated to improve by appreciation; OP = openness to improve; Scale weights used: 1 = strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = somewhat agree; 5 = agree; 6 = strongly agree

Another comparison question for TF and SF developed in Paper II was about the extent that connectedness and appreciation predicted identity as a health science educator and openness to improve teaching. This analysis utilized SEM.[4] The CFA findings indicated that the scales *identity as a health science educator*, *connectedness*, *appreciation*, and *openness to improve* were distinct factors that were related. The standardized factor loadings of the CFA for the individual observed variables associated with each of the four scales ranged from 0.51 to 0.89 when considering all faculty, and all coefficients were statistically different

[4] It was decided to not use the scales of *intrinsic motivation* and *identified regulated motivation* as the stated thesis interest was in educator identity and because the differences between *identity as a health science educator*, *intrinsic motivation* and *identified regulated motivation* were not distinct on CFA.

from zero (p <.001). The standardized factor loadings are shown in Table 4 with a short description of the item.

Survey question number with short description of items	CO	AP	ID	OP
14 - department members share ideas	0.6769			
5 - feel connected to department	0.7012			
9 - have department member to go to for ideas	0.8512			
53 - motivated by financial compensation		0.5122		
55 - motivated by feedback from supervisor		0.7161		
58 - motivated by improved student evaluations		0.6609		
57 - motivated if shown appreciation		0.8565		
4 - success in teaching is valuable to me			0.5334	
10 - matters to me how well I do at teaching			0.5734	
12 - being good at teaching important to who I am			0.7714	
15 - doing well as teacher important to me			0.8906	
25 - responsibility to reflect on and improve				0.7342
27 - responsibility to use variety of teaching methods				0.6176
49 - reflected on and improved teaching in last year				0.6368
CO = connectedness; AP = appreciation; ID = identity as a health science educator; OP = openness to improve				

Table 4. Standardized factor loadings for four scales from confirmatory factor analysis based on both tenured and sessional faculty responses to survey items.

The reliabilities for each measure, along with the correlations with the other factors with all faculty combined (and in the subgroups of TF and SF in parentheses), are included in Table 5. The highest correlations between measures were between *identity as a health science educator* and *openness to improve* for all groups while the lowest correlations were between *connectedness* and *appreciation*. The largest differences between TF and SF correlations appeared between *appreciation* and both *identity as a health science educator* and *openness to improve*.

	α	Appreciation All (TF, SF)	Connectedness All (TF, SF)	Identity as a health science educator All (TF, SF)
Appreciation	0.76	-		
Connectedness	0.78	-0.06 (-0.05, 0.04)	-	
Identity as a health science educator	0.80	0.25 (0.47, 0.18)	0.18 (0.02, 0.21)	-
Openness to improve	0.69	0.33 (0.51, 0.18)	0.18 (0.26, 0.15)	0.60 (0.55, 0.64)
α = Cronbach's alpha; All = both TF and SF combined; TF = tenured faculty; SF = sessional faculty; - = with itself				

Table 5. Correlations between scales with all faculty combined and with subgroups of tenured and sessional faculty.

Results from the CFA when all factors were allowed to covary confirmed that each of the four scales was unique, as shown in the good fit indices: χ^2 (71) = 80.99, RMSEA = .03, SRMR = 0.05, and CFI = 0.99 (as a reminder, CFI ≥ 0.95,

SRMR ≤ 0.08 and RMSEA ≤ 0.06 are considered good fit measures (Hu & Bentler, 1999)).

When the hypothesized model (H1) was tested among the sample of SF (n=160), the following good fit model was found as shown in Figure 3.

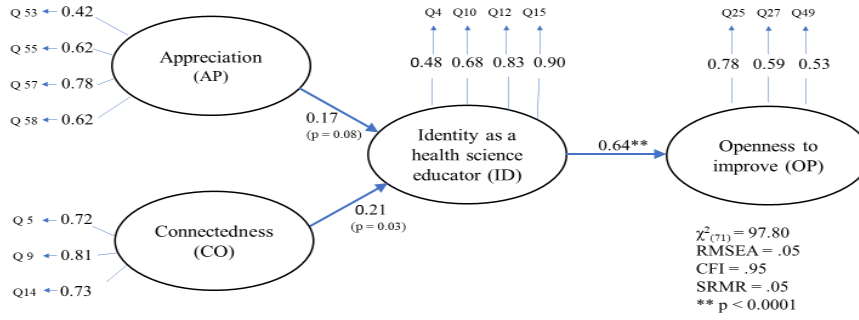

Figure 3. Sessional faculty model with best fit (n = 160). Q = question on survey; RMSEA = root mean square error of approximation; CFI = comparative fit index; SRMR = standardized root mean square residual. Structural equation modeling with sessional faculty data resulted in *identity as a health science educator* strongly predicting an *openness to improve*. *Appreciation* had a trend effect towards predicting *identity as a health science educator* and *connectedness* was significant in predicting *identity as a health science educator*. However, these path coefficients for *connectedness* and *appreciation* predicting *identity as a health science educator* were somewhat lower than what was expected. When testing for mediation, it was found that *identity as a health science educator* was a full mediator between *connectedness* and *openness to improve* as the β value for the direct path between *connectedness* and *openness to improve* (0.04) was less than the calculated indirect effect (0.13).

When the hypothesized model (H1) was tested among the sample of TF (n = 73), the CFI (0.94) was less than the standard. See Figure 4 for details.

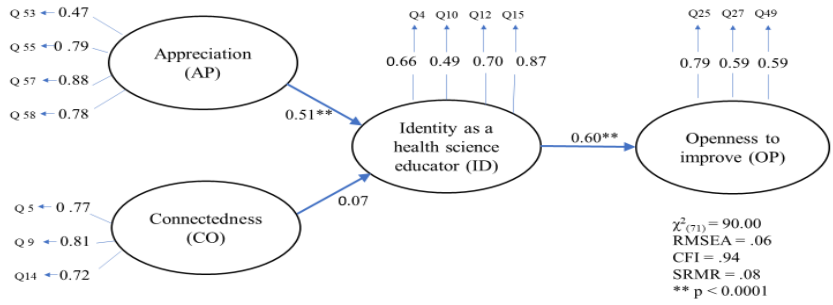

Figure 4. Not best fit for tenured faculty (n = 73). Same abbreviations as in Figure 3. Structural equation modeling with tenured faculty data. CFI value too low indicating less than ideal fit.

Due to the poor fit in Figure 4 and the idea that a supportive and appreciative department could have a direct impact on openness to improve teaching, other models were tested with one model providing the best fit. It is provided in Figure 5.

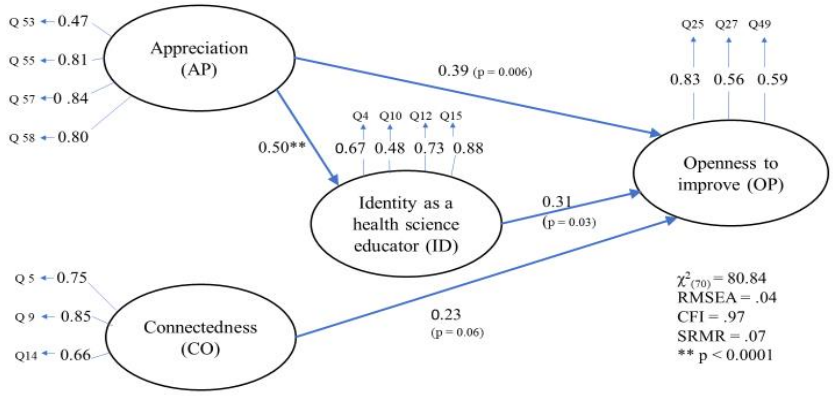

Figure 5. Tenured faculty model with best fit (n = 73). Same abbreviations as in Figure 3. Structural equation modeling with tenured faculty data indicating that *appreciation* is strongly predicting *identity as a health science educator* as well as *openness to improve*. *Identity as a health science educator* predicts *openness to improve* and *connectedness* is showing a trend effect on *openness to improve*. *Identity as a health science educator* was found to be a partial mediator between *appreciation* and *openness to improve* in the TF model.

A third comparison between SF and TF reported in Paper I examined desires for pedagogy before starting to teach, attitudes towards responsibility to invest time and energy to improve teaching, participation in FD interventions in last year, and preferred FD formats. Table 6 shows the Chi-square comparison of the

significant single items compared in Paper I (note that this does not include the descriptive statistics on the motivational principles statements and skill needs statements discussed in Paper IV). As can be seen, when compared to TF, SF: (1) desired more pedagogy before starting to teach; (2) felt more strongly a teacher needs to devote time and energy to be a better teacher; (3) participated less in activities to enhance teaching; and (4) were more positive towards the use of digital FD (e.g., distance learning).

Table 6. Table and chi-square analysis of single items comparing tenured and sessional faculty.

Item statement	Type		DSA	A	SA	DF	SS	χ^2	p
I would have liked more pedagogy before I started teaching	TF	Count	31	27	20	2	235	7.92	0.019
		% within teacher type	40%	35%	25%				
	SF	Count	46	41	70				
		% within teacher type	29%	26%	45%				
It is part of a teacher's responsibility to invest time and energy to improve teaching	TF	Count	36	22	17	2	222	7.31	0.026
		% within teacher type	48%	29%	23%				
	SF	Count	48	70	29				
		% within teacher type	33%	47%	20%				
			3+	1 or 2	0				
The number of times I participated in activities that developed my teaching methods in last year.	TF	Count	33	35	10	2	238	33.96	<0.001
		% within teacher type	42%	45%	13%				
	SF	Count	22	67	71				
		% within teacher type	14%	42%	44%				
			UL	LL					
How likely are you to attend FD in a distance learning format?	TF	Count	50	28		1	238	20.5	<0.001
		% within teacher type	64%	36%					
	SF	Count	53	107					
		% within teacher type	33%	67%					
How likely are you to attend FD in a hybrid format?	TF	Count	41	37		1	238	4.5	0.035
		% within teacher type	53%	47%					
	SF	Count	61	99					
		% within teacher type	38%	62%					
How likely are you to attend FD in a videoconference format?	TF	Count	51	27		1	238	5.4	0.02
		% within teacher type	65%	35%					
	SF	Count	79	81					
		% within teacher type	49%	51%					
How likely are you to attend FD in a social network format?	TF	Count	55	23		1	238	14.4	<0.001
		% within teacher type	71%	29%					
	SF	Count	71	89					
		% within teacher type	44%	56%					

DSA = participants who strongly disagreed, disagreed, somewhat disagreed, and somewhat agreed; A = participants who agreed; SA = participants who strongly agreed; DF = degrees of freedom; SS = sample size; χ^2 = Chi-square value; TF = tenured faculty; SF = sessional faculty; FD = faculty development; UL = participants who answered never, very unlikely, and unlikely; LL = participants who answered likely, and very likely

4.2.3 Perceived faculty development needs and attitudes towards motivational principles

To answer what were educator's PFDNs, Table 7 lists the rated PFDNs by the sample of all faculty. Five of the top six PFDNS were the same for both SF and TF (not reported in Paper IV).

Table 7. Perceived faculty development needs descriptive results.

Faculty Development Need Area	Great/some need n (%)	Little/very little/no need n (%)	Not applicable n (%)
1. Self-assessing teaching skills, developing a reflective approach to teaching	206 (83%)	35 (14%)	6 (2%)
2. Motivating today's learners	199 (79%)	34 (13%)	20 (8%)
3. Providing constructive feedback to learners at regular intervals	195 (78%)	41 (16%)	15 (6%)
4. Designing effective assessment for students	193 (76%)	34 (13%)	26 (10%)
5. Encouraging students to be self-directed	185 (74%)	58 (23%)	8 (3%)
6. Using educational technology in the teaching environment	181(72%)	53 (21%)	16 (6%)
7. Constructing quality test questions and evaluating test results	169 (67%)	60 (24%)	22 (9%)
8. Learning how to manage common teaching challenges	165 (66%)	68 (17%)	17 (7%)
9. Designing problem-based teaching activities	165 (66%)	60 (24%)	26 (10%)
10. Teaching strategies for large groups	164 (66%)	60 (24%)	26 (10%)
11. Mentoring (students and peers)	159 (64%)	75 (30%)	15 (6%)
12. Teaching professionalism	157 (64%)	77 (31%)	13 (5%)
13. Designing effective teaching strategies for student-centered learning	157 (62%)	58 (23%)	38 (15%)
14. Communicating your goals and expectations to students	152 (61%)	88 (35%)	10 (4%)
15. Teaching clinical reasoning/critical thinking	150 (61%)	64 (26%)	33 (13%)
16. Developing better lecture presentation skills	149 (59%)	85 (33%)	19 (8%)
17. Small group teaching strategies	142 (57%)	86 (35%)	19 (8%)
18. Clinical teaching strategies	138 (56%)	74 (30%)	35 (14%)
19. Using simulation in health sciences teaching	134 (54%)	79 (32%)	34 (14%)
20. Developing courses and syllabi	135 (53%)	85 (34%)	33 (13%)
21. Creating a flipped classroom	123 (49%)	72 (28%)	58 (23%)
22. Using online social media, such as Twitter and Facebook, in teaching	109 (43%)	117 (47)	25 (10%)

Another question posed to faculty was about their responsibility to apply motivational principles in the classroom. No differences were found in the responses to the motivational principles when comparing TF and SF (not reported in Paper IV), so the TF and SF were combined into one group. In Figure 6 on the left side, the percentage that agreed/strongly agreed that it was their responsibility as teachers to use motivational principles is plotted for each of the five motivational principles.

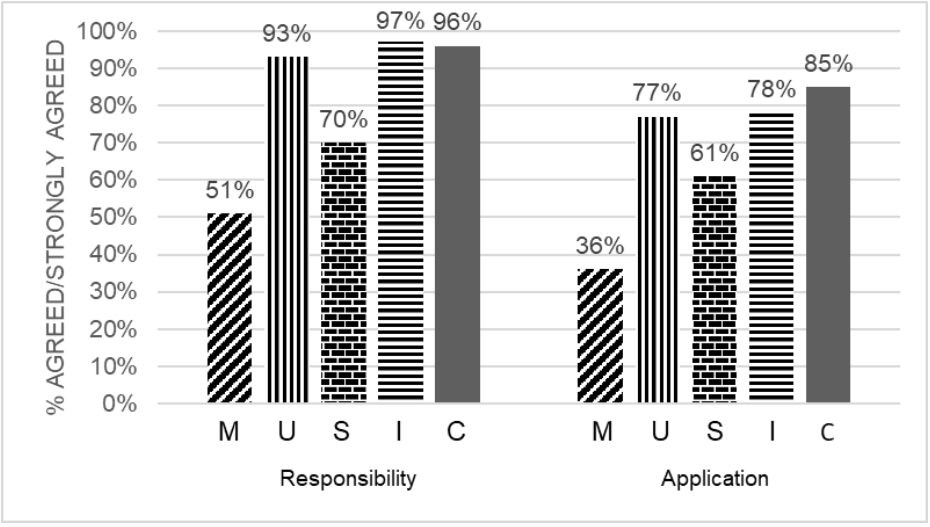

Figure 6. Agreement/strong agreement with MUSIC Model principles - responsibility and application. **Stems:** Responsibility = "It is part of my responsibility as a teacher to..."; Application = "Consider your teaching in the last year and evaluate the following statements: I..." **Principle abbreviations:** M = give students choices in some aspects of their learning; U = explain to students why the knowledge and skills they are learning could be useful to their goals; S = strengthen, by good organization and feedback, my students belief that they can succeed; I = generate student interest about my subject matter; C = communicate respect and caring to my students. On the left side, lower agreement was seen for the M and the S responsibility statements. On the right side, a similar pattern of lower agreement for M and S but with lower values overall was seen for the application statements.

4.3 Focus group findings

To answer the research question regarding the contextual factors that encourage and discourage the application of motivational principles, thematic analysis was performed. The themes are listed in Table 8. Although educators acknowledged that offering choices engaged students and that providing feedback was their responsibility, they identified factors that were affecting their ability to offer choices and provide feedback. For specific quotes, please refer to Paper IV.

Table 8. Motivational themes and example responses resulting from the thematic analysis of the focus group discussion.

Thematic question	Examples of responses
What am I responsible for as a teacher?	Responsible for *Caring* and see importance of *Usefulness*
	Not entirely responsible for *Success* and *eMpowerment*
	Providing feedback is an educator's responsibility
	We know choices engage students but there are issues that make it difficult
What makes it easy or difficult to offer choices?	Educators lacked confidence in their ability to offer choices and meet students' needs
	Educators concerned that students lack generic skills and take passive role towards learning
	Institutional issues (large, fixed content courses) make it difficult
	Mentorship and success stories could help with implementation
What makes it easy or difficult to provide feedback?	Institutional factors (more time, assistant teachers) could help educators
	Not knowing how to effectively use and guide students in giving peer feedback in group work
	Not knowing technology that could help provide feedback

Thematic analysis was performed noting differences between classroom and clinical SF. The PT SF noted differences and similarities between the needs of classroom and clinical SF. The main differences were seen in the following emerging themes: (1) need for connectedness to department with classroom educators who taught more needing more connectedness; (2) need for appreciation from department; (3) need for access to the learning management system; and (4) need for pedagogy. The first three differences named were especially relevant for classroom SF who taught more hours. The differing needs for pedagogy were that classroom educators preferred to learn through receiving specific ideas and feedback on the course they were part of and were also interested in general pedagogy if it could be applied to their course. Clinical educators were more focused on how to teach clinically and developing their constructive feedback practices. The themes are presented in Table 9 with subthemes. The table also includes the similar themes noted for all SF. For specific quotes, please refer to Paper III.

Table 9. Thematic analysis of different and shared needs of classroom and clinical sessional teachers from the focus group discussion.

Theme	Type	Subtheme
Needs	Both	We have different needs
Connectedness	Class	Lacking connectedness
	Clinic	Appropriate connectedness
Appreciation	Class	Do not feel appreciated
	Both	No appreciation needed
Learning management system	Class	Limited access to learning management system
	Clinic	Not sure if they need
Pedagogy	Class	Want specific to being classroom teacher
	Clinic	Want specific to being clinical teacher
	Both	Want before starting to teach
		Want convenient, condensed pedagogy
Need for feedback on teaching	Both	Want departmental feedback on teaching
Need to communicate with department about curriculum	Both	Limited knowledge about curriculum
Welcomes/ orientations	Both	Not feeling welcome, not being sure of role as sessional faculty
Salary	Both	Not paid well
Support for role as educator	Both	Educators do not feel supported in their role as educator by their clinical facilities
Pedagogical course as tool to recruit new teachers	Both	Insecurity about not feeling supported in teaching
Focus Groups	Both	Appreciative that there was interest

Type = type of teacher; class = classroom teacher; clinic = clinical teacher; Both = both classroom and clinical teachers

In addition, a few observations were noted during the SF focus groups: (1) The main emotions expressed during the groups were contrasting: wanting to know, acceptance, openness but also resignation, frustration, and uncertainty; (2) Very few participants voiced personal responsibility for learning about teaching; (3) Throughout the focus group discussions, it was obvious that the participants were learning from each other; and (4) The participants expressed gratitude that this topic was being investigated.

4.4 Recommendations based on results

The critical theory paradigm is designed to envision how situations could be changed for the better. Therefore, recommendations for change based on the results are listed in Table 10. The recommendations were divided based on the faculty type (SF, TF, All). There is also an indication of the responsible party (university, department, FD) based on the situation at SHS. (This may be

different for other universities.) Last, comments are made that will be discussed in more detail in the *Discussion* section.

Table 10. Support suggestions for universities, departments, and centers of teaching and learning developed for all types of teachers based on results from survey and focus group discussions.

	Suggestion to support teachers	Univ	Dept	CTL	Comments
Sessional faculty	Collect SF contact information and keep updated	x	x	x	Required for good communication
	Needs assessments - general & specific, at regular intervals		x	x	Required for good FD
	Require pedagogy before starting to teach	x		x	"Pedagogy for SF"
	Develop ongoing FD that is context dependent			x	See *Discussion* for specific recommendations
	Develop convenient FD			x	
	Develop additional supports for classroom SF		x	x	
	Increase awareness of FD offerings	x	x	x	Through communication
	Enhance connectedness*	x	x	x	Consider ranking of SF giving more support to classroom SF who teach multiple hours
	Enhance appreciation*	x	x	x	
	Address educator identity/clinicians who teach	x	x	x	Enhance awareness of need to learn craft of teaching, promote educator identity
	Move towards becoming educator	x	x	x	
	Provide feedback on teaching from department and students	x	x		All communicate to SF that university/department cares about them and the quality of their teaching
	Provide access to LMS, student evaluations*	x	x		
	Enhance communication	x	x		
	Provide context-specific orientations	x	x		
	Support educators in clinical workplace	x	x		
	Increase salary	x			
Tenure faculty	Enhance appreciation	x	x		Develops identity and openness to improve
	Enhance connectedness	x	x		Develops teaching community
All faculty	Encourage use of motivational principles			x	Use MUSIC Model
	Provide FD for new health science faculty			x	Include awareness of need to learn craft of teaching, promote teacher identity
	Provide FD for increased teaching confidence			x	See text for specific recommendations
	Enhance technology knowledge			x	
	Develop FD on group work/peer feedback			x	
	Provide mentors and stories		x	x	
	Provide assistant teachers for large classes	x			Automatic if above certain size
	Teach generic skills to students	x			Prepare students for learning
	Promote active learning among students	x	x		
	Celebrate motivations, identity, openness to improve	x	x	x	More emphasis needed at all levels

Univ = University responsibility; Dept = Department responsibility; CTL = Center of teaching and learning staff responsibility; SF = sessional faculty; FD = faculty development; LMS = learning management system; *= especially important to classroom sessionals who taught more hours

5 Discussion

The aims of this thesis focused on exploring faculty needs within their teaching contexts to support their efforts to improve their teaching. Specifically, the needs of SF and the needs of educators applying motivational principles were examined. Therefore, although the Methods and Results of this thesis were presented in chronological order (survey followed by focus groups), the Discussion will be organized with sections on these two foci. As the comparison of SF with TF also generated some information on TF, support for this group of educators will also be included. Implications and suggestions for support based on the results will be provided for FD, departments, and universities as it was a part of the mixed methods integration and associated critical theory research paradigm utilized in the qualitative analysis.

5.1 Summary and importance of results

The results of this study revealed information about the differences between TF and SF as well as differences between classroom and clinical SF, addressing the first three research aims of this thesis. Similarities were seen in the five highest-rated PFDNs (Table 7) and in the scales measuring *intrinsic motivation*, *identified regulated motivation*, *identification with teaching*, and *openness to improve* when comparing TF and SF (Table 3). However, differences between TF and SF were identified in the scales measuring *connectedness* and *appreciation*, and in single items assessing pedagogical needs associated with FD (Tables 3 and 6). Utilizing SEM, different models for *connectedness* and *appreciation* scales predicting *identity as a health science educator* and *openness to improve* were found when comparing SF and TF (Figures 3 and 5). Thematic analysis of the SF focus groups identified the importance of connectedness, appreciation, feedback on teaching, convenient and context-specific faculty development, and support for their educator role, especially for classroom teachers who teach more hours (Table 9).

The results also addressed the research aims examining the attitudes of educators towards their responsibility to apply motivational principles and the contextual factors that affect their application of motivational principles. Survey results indicated that “self-assessing and developing a reflective approach to teaching” and “motivating today’s learners” were the highest rated PDFNs for all faculty (Table 7). The results also indicated that offering choices and supporting students’ belief in their ability to succeed in the course through organization and feedback were the motivational principles for which faculty felt less responsible

(Figure 6). Possible factors affecting educator attitudes towards their responsibility to offer choices and provide feedback were explored in focus groups. These included personal fears of incompetence, lack of knowledge of helpful technologies, lack of time, a perceived lack of students' generic skills, passive students, limitations of peer feedback, and large classes (Table 8). Finally, recommendations for change based on all results were provided, addressing the last aim of this thesis (Table 10).

5.2 Representativeness of samples and scale reliability and validity

Some observations could be made about the survey and focus group demographics and the reliability and validity of the scales utilized in this thesis. The survey response rate was similar to other needs assessments in the literature (Bigbee et al., 2016; Schönwetter et al., 2015). Despite TF and SF survey samples that included more females and younger participants than university-reported distributions, statistical tests indicated there were no interactions with gender or age when evaluating the significant results of the scales and single items. This indicated that the differences were not due to gender or age differences between TF and SF samples. In addition, the similarities between the faculty distribution at SHS and the samples of faculty for Papers I, II, and IV suggested that the samples were representative of SHS faculty (Table 1). This included very similar representation of the two largest faculties (medicine and nursing) in TF, SF and combined samples. Both the similarities and the lack of interactions made the resulting conclusions more generalizable to the whole SHS population. Ideally, there would have been representation of all health science professionals in the SF focus groups, but, since this was not the case, a subgroup analysis was conducted with physical therapist information due their predominance (11/15 participants). This may limit its generalizability to all health professions, but did make it possible to report on a health profession seldom researched. Ideally, all departments would have been represented in the motivational principle focus groups; the two largest departments (medicine [including physical therapy] and nursing) were well represented. All scales utilized in the survey results demonstrated good or acceptable internal reliability and the validated scales (ID, IR, and IM) demonstrated comparable reliability measures to the original scales (Dybowski & Harendza, 2015; Jones et al., 2010). Validity for the developed scales (CO, AP, OP) was established on their theoretical basis from the literature review and the proposed hypothesis from van Lankveld et al. (2017b), as well as the supporting evidence from the assessment scores from the internal reliability, CFA, correlational tables, and factor loadings (Downing, 2003). The results for the scales showed good or acceptable internal reliability, good fit with unique factors

on CFA, and higher factor loadings within scales compared to lower correlations between scales (Tables 4 and 5, respectively).

5.3 Supporting sessional faculty

Three of the six research aims of this thesis involved analyses about how to support SF as educators. A lack of information about the SF population at SHS limited the size of the SF population we could invite to participate in the survey to 651 out of more than 1000 possible SF. The lack of information on the gender, faculty distribution, and age of SF also limited the generalizability of the result. This lack of knowledge about SF has been seen in other research (Kezar & Sam, 2010; Linder, 2012). This underscores an important issue; that finding out who SF are is an important first step to addressing their needs (Harvey, 2017). The next step is asking them about their PFDNs (Harvey, 2017) and not relying on informal conversations and student evaluations to provide this information (Drowos et al., 2017). Both the survey and the SF focus group analysis within this thesis accomplished the objective of asking SF about their needs for support in teaching.

5.3.1 No differences in PFDNs and motivations to teach

Included in the first aim of this thesis was the comparison of PFDNs and motivations to teach of TF and SF. No differences were found between TF and SF with respect to their five highest rated PFDNs (Table 7), which would seem to indicate that addressing these PFDNs would benefit all educators. No other research studies could be located that compared the PFDNs of TF and SF. However, previous health science surveys of all types of health science faculty indicate similar needs for providing feedback and designing assessments (Behar-Horenstein et al., 2014; Bigbee et al., 2016; Schönwetter et al., 2015), which were the third and fourth highest ranked PFDNs on the survey. The top two PFDNs (reflective practice and motivating students) are discussed below in *Motivational principles and PFDNs results* (section 5.5).

No differences were found with respect to the *intrinsic motivation scale* and this measure had high levels of agreement, meaning that both TF and SF found teaching enjoyable and personally fulfilling (Table 3). As intrinsic motivation is considered the highest form of self-regulation (Deci & Ryan, 2008), this result is encouraging to see in both types of educators. Again, no other large-scale quantitative studies could be located that compared the intrinsic motivation of TF and SF, but this result is in agreement with qualitative studies done on various types of faculty that describe teaching as enjoyable and fulfilling (Dixon et al., 2015; Dybowski & Harendza, 2014; May et al., 2012). Results based on the work of Steinert and Macdonald (2015) suggest that, “we should acknowledge our

teachers, nurture their inherent desire to teach, and make the joy of teaching more visible" (p. 780). Efforts to acknowledge and strengthen this strong motivation to teach could be increased as it may improve the quality of teaching. The "joy of teaching" could be highlighted and celebrated across all types of faculty.

No differences were found with respect to the *identified regulated motivation* (or values, beliefs) scale (Table 3) and, again, no other large-scale research studies for comparison could be found. Professional values (e.g., teaching is a healthcare professional's duty) are common motivators in the health sciences as seen in qualitative studies (Dahlstrom et al., 2005; Dybowski & Harendza, 2014; May et al., 2012; Steinert & Macdonald, 2015). The fact that the average scale scores were similar for TF and SF and had high levels of agreement (average of 5.5) would suggest SF are not less committed to teaching, as has been suggested in the literature (Bunton & Corrice, 2011). Assumptions regarding the lack of motivation of SF should be replaced with needs assessments and focused discussions. Again, acknowledgement of this strong commitment to teaching, to the students and to the profession from universities, departments, and FD may serve as a form of encouragement and appreciation that may motivate faculty to improve teaching.

Autonomous motivation, as described by Deci and Ryan (2008), is "both intrinsic motivation and the types of extrinsic motivation in which people have identified with an activity's value and ideally will have integrated into their sense of self" (p. 182). As both intrinsic motivation and identified regulated motivation can be considered autonomous motivation and were similar and in high agreement for TF and SF when measured with the scales, it suggests that both TF and SF have high autonomous motivation. Supporting autonomous motivation in faculty can maximize functioning and well-being (Lyness et al., 2013); therefore, the idea of encouraging autonomous motivation in educators seems warranted.

5.3.2 Differences and similarities in pedagogical attitudes and preferences

Another aim of this thesis was comparing the attitudes and preferences of TF and SF for learning about pedagogy through FD interventions. The literature has shown this to be an important area for SF (Buch et al., 2017). This can involve evaluating the availability of FD prior to teaching, the FD intervention content, and the FD intervention format/general availability.

One area to compare is access to pedagogical training before starting to teach. When given the statement that they would have liked to have received pedagogical training before starting to teach, 71% of SF agreed or strongly

agreed with this statement (Table 6). This was significantly more than the TF and in agreement with qualitative studies that indicate SF do not receive pedagogical training prior to teaching (Bigbee et al., 2016; Buch et al., 2017; McCullough et al., 2015; Santisteban & Egues, 2014). The SF focus group participants deepened the discussion by confirming the need for a pedagogical course, indicating that a lack of pedagogical training made them feel ill-prepared to teach. From a certain aspect, this response was encouraging as the literature reports that health science educators can often be unaware of their need for pedagogical training (Riveros-Perez & Rodriques-Diaz, 2018). The participants even suggested the department provide a free, introductory pedagogical course as a show of support and as a way to recruit new educators (Table 9). It was obvious from their comments that their lack of pedagogical training was affecting their confidence, or sense of competence, in their role as an effective educator. A sense of competence has been identified as essential for educator identity (van Lankveld et al., 2017b) and optimal functioning in SDT (Ryan & Deci, 2000). An important question remains: is it reasonable to expect our SF to be effective, confident, and competent educators if they are never trained to teach? A suggestion would be that all health science faculty could be required to take a context-specific pedagogy course prior to teaching for the first time and that this course could be utilized in the recruitment of other SF. This required learning of the “craft of teaching” should improve the quality of teaching of these teachers.

The content of FD interventions is also of importance to SF. The question of FD intervention content was addressed in the survey through statements about PFDNs, where SF highest rated PFDNs were similar to TF. However, FD intervention content was explored further in the SF focus group discussions and revealed the importance of context-specificity and relevancy (Table 9). These results agree with and support another study’s focus on relevant FD to motivate the health science educator (Sorinola et al., 2017). The classroom educators expressed a preference for learning through receiving specific ideas and feedback on the course they were part of by the course coordinator (usually a TF). They were also interested in general pedagogy if it could be applied to their course. Clinical educators were more focused on clinical teaching and developing their constructive feedback practices, which was also seen in the research by Bearman et al. (2018). As both classroom and clinical SF have limited time to invest in teaching, it is especially important that the FD they do receive is condensed and relevant to their teaching (Heffernan, 2018). This was an instance when the focus group discussion added great depth to the understanding of SF PFDNs as SF were asked directly what their needs were and explained why they were important (Harvey, 2017).

When discussing format and availability of FD interventions, attendance at FD interventions needs to be considered. According to the survey, SF attended a FD intervention significantly less than TF in the last year (56% vs. 86%, respectively) (Table 6). Other research on SF attendance at FD reports somewhat higher values of 67% and 69% (Buch et al., 2017; Hoyt, 2012). The SF focus group discussion revealed one reason for low attendance of SF at FD interventions: only SF that were graduate students received communication about FD from the CTL. This problem is, unfortunately, commonly reported in the literature (Buch et al., 2017; Hitch et al., 2018; Leigh, 2014). This issue points back to the problem of not knowing who SF are and also to the lack of access of SF to the learning management system. It is suggested that SF need to have communication about and access to FD interventions if improvement in teaching is the university‘s objective.

However, survey results also indicated that SF were more willing to invest time and energy in improving their teaching than TF (Table 6). This paradox between SF desires to improve teaching and SF participation in FD can be partially blamed on lack of relevant content as described above. However, questions about availability and format need to be considered as well. Survey results indicated that SF were more open to digital formats for FD (Table 6) and the focus group discussion confirmed this. Some CTL courses are available digitally at SHS, but more efforts could be made to make this format available. The focus group participants added the conditions that FD should be advertised well and convenient. Most of these results confirm what a qualitative study by Buch et al. (2017) found encouraged SF to attend FD: 1) convenient time; 2) digital/online options for formats; 3) increasing SF awareness of FD workshops and offerings; 4) offering workshops that are relevant and have proven benefits to students; and 5) incentives (appreciation, financial compensation) to participate. Incentives will be discussed in the next section (section 5.3.3).

5.3.2.1 Connectedness, appreciation, identity, and openness to improve – needs and relationships

An aim of this thesis was to compare TF and SF with respect to identity and an openness to improve teaching. No differences were found between TF and SF with respect to the scales that measured *identity as a health science educator* and *openness to improve* with both reporting high levels of agreement (average was 5.5 and 5.2, respectively) (Table 3). No other large-scale studies measuring these constructs in health science faculty could be located. The fact that TF and SF reported similar values for identity was a surprising result, given the literature that suggests that SF identify less as an educator and are less motivated and committed to teaching (Bond, 2015; Buch et al., 2017; Bunton & Corrice, 2011). Along with SF‘s higher agreement that the responsibility of an educator is to

invest time and energy in improving teaching (see section 5.3.2), the high *openness to improve* scale value reported by SF seems to indicate a real desire to be a better educator, even if they are struggling to participate in FD (Table 6). This makes the argument for convenient FD offerings more compelling. The similar high identity results for TF and SF were also surprising because of the significant differences identified between TF and SF with respect to the scales for *connectedness* and *appreciation* (Table 3), as both are considered important psychological proccesses in the formation of educator identity (van Lankveld et al., 2017b). These relationships are discussed in more detail below in section 5.3.3.2 (*Different models predicting identity as a health science educator and openness to improve)*.

Another aim was to compare TF and SF with respect to needs for connectedness and appreciation. Although no other studies of similar size that measured connectedness and appreciation could be located, the low results for SF on the scale that measured *connectedness* were in agreement with the common descriptions of life as a SF in the literature. These descriptions include words like ‘isolated’, ‘not belonging’, ‘limited contact with faculty’, ‘lack of institutional engagement’, ‘excluded’, ‘invisible’ and ‘outsiders’ (Forbes et al., 2010; Jolley et al., 2014). Increasing a sense of connectedness has been associated with lower reports of SF isolation and improved loyalty and satisfaction (Buch et al., 2017; Hoyt, 2012). The SF in the current study also were more motivated than TF to try a new teaching method by the forms of *appreciation* measured on the scale, including acknowledgement, feedback on teaching, improved student evaluations, and financial compensation (Table 3). Research has shown that the loyalty of SF is partially predicted by small bonuses given for participation (Buch et al., 2017; Hoyt, 2012). The impact of connectedness and the forms of appreciation on SF are developed further in section 5.3.3.2 (*Different models predicting identity as a health science educator and openness to improve*).

5.3.2.2 Different models predicting identity as a health science educator and openness to improve

The second comparative aim of this thesis was to examine to what extent connectedness and appreciation predicted identity as a health science educator and openness to improve teaching in TF and SF. Based on the systematic review of van Lankveld et al. (2017b), I proposed a model (Figure 1 - H1) and tested it with the TF and SF data. The model examined whether the scales for *connectedness* and *appreciation* could predict *identity as a health science educator*. Due to the link between higher educator identity and improved teaching (Lieff et al., 2012; Stone et al., 2002) and the interest in what predicts an educators‘s openness to improve teaching, it was added to the model that the

identity as a health science educator scale would then predict *openness to improve*. No other studies could be located that utilized SEM to look at the relationships between these constructs. Analysis revealed separate best-fit models for SF and TF (Figure 3 and 5) with few similarities and many differences. One similarity was that *identity as a health science educator* scale always significantly predicted *openness to improve*, supporting other research about the importance of educator identity when trying to improve teaching quality in health sciences education (Lieff et al., 2012; Steinert et al., 2016; Steinert et al., 2019; Stone et al., 2002). This was especially true in the SF model where there was a strong relationship betwen the two constructs, emphasizing the importance of educator identity in this group. More discussion on identity in FD seems warranted because these models suggest that, when identity is enhanced, an educator may be more open to improve their teaching.

When comparing the SF and TF models for differences, the SF model was the hypothesized model (H1). In contrast, the TF model was modified so that both the *appreciation* and *connectedness* scales could predict *openness to improve*. The differences between these models could, in part, be due to the impact of the SFs' or TFs' working environment on both a sense of connectedness and a sense of appreciation, as suggested by van Lankveld et al. (2017b). For example, in a university department where teaching is valued and supported (positive environment), TF may feel more confident in their educator identity, feel appreciated for their teaching, and connect to work alongside one another to make teaching better. This might explain why both the *connectedness* and *appreciation* scales predicted *openness to improve* in the TF model (Figure 5). (Additional discussion, including β values for the TF values, will be discussed in *Tenured faculty results discussion* – section 5.4.)

When examining the SF model (Figure 3), the *connectedness* scale was predictive of *identity as a health science educator*, and the *appreciation* scale was almost significant in predicting *identity as a health science educator*. However, both relationships were fairly weak. These results might be because some SF see themselves within their hospital or clinic as "clinicians who teach" (Taylor et al., 2007) and not as educators. Therefore, they would not look to their university department for a sense of connectedness and appreciation. If SF do seek connectedness, appreciation, and/or identity as an educator from their university department, SF may struggle with feeling a part of the educator community and see themselves as "isolated" (Beaton et al., 2000; Bunton & Corrice, 2011; Jolley et al., 2014; Lieff et al., 2012). Therefore, the "clinician who teaches" and the "isolated SF" may explain the fairly weak predictive values of the *connectedness* and *appreciation* scales in the SF model. The SF model also indicated that the *openness to improve* and *connectedness* scales were

mediated by the *identity as a health science educator scale,* which has implications. It would confirm that the focus of FD for SF should be on increasing connectedness (to predict higher identity as a health science educator) and other interventions that improve identity among SF as ways to possibly improve teaching.

The fact that the SF *identity as a health science educator* scale average was high but neither the *connectedness* nor *appreciation* scales were highly predictive of identity for SF might suggest that the other psychological processes named by van Lankveld et al. (2017b) – a sense of competence and a sense of commitment (to students and profession) – may be more influential in SF identity formation. The results from this dissertation have already demonstrated that SF have a high level of commitment to students and their profession in the scale measure of *identified regulated motivation* (Table 3), which included statements about duty to content matter, passing on knowledge and contributing to students as future healthcare providers (Table 2). This leaves the question of a sense of competence. However, it is suggested that competence as a healthcare professional is not the same as competence as an educator (Browne et al., 2017; Murray et al., 2014; Riveros-Perez & Rodriques-Diaz, 2018; van Lankveld et al., 2017b). Authors of a systematic review point out universities wrongly assume that being a senior clinician prepares a person for academia and describe the process of becoming a health science educator as taking 1-3 years (Murray et al., 2014). Researchers suggest that this needs to be a conscious transition with an awareness and commitment to acquiring expertise in education (Browne et al., 2017; Riveros-Perez & Rodriques-Diaz, 2018). It is speculated that the SF model is an underdeveloped TF model, similar to what is seen in the early teaching years of health science faculty, where there is a heavy dependence on clinical expertise for competence and identity as an educator (Duffy, 2013; Hurst, 2010; Murray et al., 2014; Riveros-Perez & Rodriques-Diaz, 2018). For this reason, suggestions for new academics could be applied to SF. These include making universities and educators aware of the need for pedagogical training (Browne et al., 2017; Murray et al., 2014; Riveros-Perez & Rodriques-Diaz, 2018), providing relevant FD, and developing teaching communities among SF (Buch et al., 2017). If the SF model was an underdeveloped TF model (Figure 5), the models could be thought of as on a continuum. The continuum would suggest that, as expertise in medical education is acquired, connectedness may become less about identity and more about a relationship within a community of teachers. It would also suggest that appreciation for teaching becomes more relevant to both educator identity and an openness to improve teaching. Therefore, universities and departments may need to consider ways to enhance connectedness, appreciation, and the identity of medical educators if their goal is improved teaching.

5.3.2.3 Contrasting needs of classroom and clinical sessional faculty explained by focus group discussions

The last aim of this thesis relative to SF was to get a deeper understanding of SF experiences of and desires for connectedness, appreciation and support, while exploring differences and similarities between classroom and clinical SF. Focus group results added to the discussion on connectedness and appreciation with contrasting results between classroom and clinical SF (Table 9). This provided an explanation for the impact of connectness and appreciation on SF and confirmed the heterogeneity of this group (Bond, 2015). Classroom SF, especially those who taught more hours, complained most of feeling excluded and unappreciated and some saw this as a lack of caring by the university/department about the quality or value of their work, similar to what is reported in the literature (Jolley et al., 2014). These educators‘ feelings seemed to correspond with “isolated SF“ described above in section 5.3.3.2. Other SF, mainly clinical educators, indicated less needs for connectedness and appreciation, seeming to rely more on their professional values and clinical work community, also seen in the literature (Beck Dallaghan et al., 2017; Steinert & Macdonald, 2015). These educators seemed to correspond with the “clinicians who teach“. These contrasting needs for connectedness and appreciation may also explain why the predictive values of these constructs were fairly weak for the SF model (Figure 3) and support the idea that SF are a heterogenous group. The focus group results indicated the relative importance of these constructs for various types of SF, suggesting a greater importance for classroom SF who teach more hours. This difference may impact decisions made when trying to increase the support of SF.

5.3.3 Additional SF areas of support – focus groups

Finally, in addressing the aim of identifying ways to support SF in their teaching, there were again some similarities and differences between classroom and clinical SF as seen in Table 9. There was agreement among all SF focus group participants on other supports that would help them as educators. One prominent support for SF, that was mentioned both as forms of appreciation in the survey (i.e., feedback from supervisor and improved student evaluations) and in the focus groups, was feedback on their teaching performance from both department and students. “Feedback on my teaching performance” was reported by van den Berg et al. (2013) as the strongest predictor of engagement in teaching faculty at a university medical center. Better communication could also help SF see how their teaching, either in the classroom or clinic, fits into the overall program, another problem mentioned in the SF literature (Buch et al., 2017; Marshall, 2012). Another common indirect support noted by many SF were the focus groups themselves as a form of communication and caring, supporting the

statement that contacting and asking SF about their needs is an important first step in providing FD for this population (Harvey, 2017).

There were also areas identified by SF where specific contextual support needs were required. Student feedback was problematic for the classroom focus group participants, especially because many SF had no access to the learning management system, another barrier for communication with SF reported in the literature (Ryan et al., 2013). Increased feedback on teaching from department and students through the learning management system could also be perceived as a form of caring, as mentioned by participants, and as a way to enhance connectedness and communication. The need for orientations is commonly mentioned in the literature (Elder et al., 2016; Hitch et al., 2018). However, SF were clear that these orientations should be specific to context – to university, department and SF role if the SF has classroom responsibilities and to clinical teaching if the SF has clinical responsibilities. The discussion about differences in FD course content has already been provided in section 5.3.2. Additional supports mentioned specifically by SF with classroom responsibilities are similar to what has been seen in the nursing literature: physical resources, information technology, teaching resources (e.g., rubrics), faculty mentoring opportunities, access to course syllabus, and online resources, both for practical and mentoring purposes (Dixon et al., 2015; Elder et al., 2016).

5.4 Supporting tenured faculty

Although not included in the primary aims of this thesis, there were some results and discussions important to TF that came from the analyses that are summaried here. Sixty percent of TF sample indicated they would have liked more training in pedagogy before starting to teach (Table 6). This perceived lack of pedagogical knowledge may contribute to doubts about their teaching competence and educator identity (van Lankveld et al., 2017b). Similar to SF, TF were found to have high levels of *intrinsic motivation*, *identified regulated motivation*, *identity as a health science educator*, and *openness to improve* (Table 3) on the scales. Again, this may be something to celebrate and make visible (Steinert & Macdonald, 2015). Although TF *connectedness* was higher than SF, the average score of 3.8 or just below “somewhat agree” indicates that TF at SHS also may struggle with not feeling connected to their department. However, the TF model showed that *connectedness* was important in predicting *openness to improve*. It might be wise for universities to evaluate how the direct working environment of TF is affecting their sense of connectedness and appreciation and take steps to improve both as a possible way to increase their educator identity and their openness to improve teaching. In describing a culture that supports teaching and improvement, Feldman and Paulsen (1999) identify eight essential charactertics,

two being “supportive, effective department chairs“ and “frequent interaction, collaboration, and community among faculty“. The results from this thesis point to the importance of a supportive teaching department for TF if teaching improvement is desired.

The analysis of the *appreciation* scale was of interest in that the average score was 4.2 (or “somewhat agree”) (Table 3) but β values for the SEM TF model had the *appreciation* scale strongly predicting both *identity as a health science educator* and *openness to improve* (Figure 5). This link between appreciation, identity and improved teaching was also seen in a study where modest grants for innovative teaching at a medical school created enduring programs and subsequent projects, while promoting educator identity (Adler et al., 2015). A major challenge for health science educators is the lack of academic recognition and funding (Huwendiek et al., 2010) as a form of appreciation. With descriptions of medical education in the literature such as “ugly duckling” and “night-shifts” (Dybowski & Harendza, 2014; Sabel & Archer, 2014), it would suggest that this appreciation of teaching needs to start within the health science community itself and broaden to society.

5.5 Motivational principles and PFDNs results

The other focus investigated in this thesis that is relevant to teaching quality and student learning were the research aims related to application of motivational priniciples by the educator (Jones, 2009). Interestingly, the two top-rated PFDNs for all faculty (Table 7) - “self-assessing teaching skills and developing a reflective practice towards teaching” and “motivating today‘s learners” – are not commonly assessed on needs assessments but are central to applying motivational principles. Educators can benefit from reflective practice as a way to better understand and improve their teaching practices (Berman, 2015; Feldman & Paulsen, 1999; Kane et al., 2004). Authors of a needs assessment at the University of Manitoba Health Science School (Schönwetter et al., 2015) also found that “motivating students” was their educators‘ second highest rated PFDN. As reflective practice and the application of motivational principles are seen as a main determinant of learning, there has been increased interest in motivation in health science education recently (Pelaccia & Viau, 2017).

However, there has not been much research conducted on motivation in the health sciences. As a form of comparison to the MUSIC Model utilized in this thesis, The AMEE Guide on motivation in medical education was considered. It makes recommendations to educators to increase motivation based on a “motivational dynamic model” (Pelaccia & Viau, 2017). Interest and Usefulness together from the MUSIC Model may be compared to the “perception of value”, part of the motivational dynamic model mentioned in the AMEE Guide, as it is

defined by the student's judgement of the interest and usefulness of the activity (Pelaccia & Viau, 2017). The motivational dynamic model also refers to the "perception of self-efficacy" as a student's judgement of his/her ability to succeed and is, therefore, similar to the Success principle in the MUSIC Model. The third and last perception in the motivational dynamic model is the "perception of controllability", which is similar to the eMpowerment principle of the MUSIC Model. Interestingly, the principle of Caring is not explicitly highlighted in the AMEE Guide and may be an area that needs more attention in health science education.[5] An argument for the MUSIC Model utilized for the current study is that it was developed by an educational psychologist and motivation scientist and has been researched extensively in higher education (Jones, 2018), including applications in neuroscience (Tu & Jones, 2017) and cancer biology (Chittum et al., 2017).

5.5.1 High support for responsibility and application of Usefulness, Interest and Caring

Relevant to the discussion of motivational principles and one of the aims of this thesis was determining what educators' attitudes are towards their responsibilities to apply motivational principles in teaching. Given the educator responses to the MUSIC Model statements in the survey (Figure 6), educators do feel it is their responsibility to attract attention and arouse emotion (Interest), explain the usefulness of the skills and knowledge the student is learning (Usefulness), and find ways to show they care about student well-being and learning (Caring) (Jones, 2009; Jones & Skaggs, 2016). No other research studies could be found to compare to the current results.

In the focus groups, participants confirmed that Interest, Usefulness, and Caring were their complete responsibility (Table 8). Therefore, it is assumed that educators will attempt to apply these principles in the classroom as they see them as fully their responsibility. Although all three motivational principles were lower for the application statements (Figure 6, right side), the values were still relatively high, indicating that teachers were applying these principles.

5.5.2 Lower support for offering choices (eMpowerment)

Educators empower their students by giving them some sense of control (Jones, 2018; Pelaccia & Viau, 2017) and offering choices is a central component of many motivational theories (Hidi & Renniger, 2006; Kusurkar et al., 2011;

[5] This includes both academic caring [students' perception that the teacher cares about their learning] and personal caring, as these are often highly correlated (Jones & Skaggs, 2016).

Skinner, 1996). As mentioned, “perception of controllability” is part of AMEE Guide (Pelaccia & Viau, 2017). However, according to Figure 6, only 51% of educators agreed/strongly agreed that it was their responsibility to provide students with choices (eMpowerment). The agreement/strong agreement with the offering choices application statement was 36% (Figure 6), confirming that most educators were not applying this principle in the classroom. No other large-scale studies that looked at educator attitudes towards choices could be located, although Kusurkar and Croiset (2015) suggest teacher perceptions should be investigated and offering choices is suggested in the AMEE Guide (Pelaccia & Viau, 2017).

Focus group participants agreed that offering choices engaged students. However, they also identified factors, some within their control and some not, that explained why they did not take full responsibility for offering choices (Table 8). They expressed some fears in that they were uncomfortable teaching in ways that were different from how they were taught, similar to what Oleson and Hora (2014) reported. This again points to the importance of FD prior to beginning teaching and ongoing FD to diversify teaching (DaRosa et al., 2011). Another personal reason mentioned were educators’ concerns that they could not meet the demands of today’s learners. There continues to be debate about millennial learners with some individuals convinced that millennials have very different needs (Ruzycki et al., 2019) and others arguing that the differences are a myth that encourages stereotyping (Jauregui et al., 2020). Research has shown that today’s learners prefer a variety of teaching methods and value choice, flexibility, and the ability to control the pace of learning (Pettit et al., 2017), all part of eMpowerment strategies. The participants also cited that students lacking generic skills and taking a passive role towards learning negatively affected educators’ ability to offer choices. Student passivity was also implied on the survey results with “encouraging students to be more self-directed” being the 5th-highest rated PFDN. Other researchers have reported educators’ concerns over critical thinking skills (Pizzimenti & Axelson, 2015) and Love et al. (2018) identified student passivity towards learning as an obstacle to educators trying to improve their teaching. Finally, participants spoke of the institutional issues of large classes and fixed material to teach as hindering factors to offering choices. It is understandable that these would be challenging situations, especially if educators are already lacking confidence in their abilities.

5.5.3 Lower support for providing feedback (Success)

Research suggests that students are motivated by a structured, challenging course where feedback about the students’ progress is regularly given as it enhances their belief that they can succeed if they put in the effort (Success)

(Jones, 2018). In this study, 70% of educators agreed/strongly agreed that providing feedback and organization to ensure students' perception of success (Success) was their responsibility and 61% had applied it in the last year (Figure 6), while 78% indicated great/some need for training in how to provide feedback at timely intervals as a PFDN (Table 7). When presented with the Success result, the focus group participants primarily discussed and took responsibility for providing feedback. However, similar to offering choices, the participants spoke of hindering factors to providing feedback. The factors were contextual and related to the institution, including a lack of paid time and large classes. However, the factors also included educators' lack of knowledge of how to guide effective peer feedback and how to use technology to provide feedback. Nofziger et al. (2010) suggest that universities need to train both faculty and students in how to effectively use peer feedback because it is a skill. Love et al. (2018) identified using technology as one of the main drivers behind educators' motivation to improve their teaching. "Using educational technology" was indicated as some/much need by 72% of faculty (Table 7), although courses in technology are available at SHS, suggesting a lack of faculty awareness or a perceived lack of time.

If FD staff and universities can address these hindering factors, educators may improve teaching quality by offering more choices and feedback. This, in turn, may lead to increased motivation in the classroom and improved learning (Jones, 2009). FD staff and universities might also take advantage of the encouraging factors reported by the participants for both offering choices and providing feedback: stories, mentors, and assistant teachers. Stories from teaching seemed to cause participants to reflect on their own teaching, providing a benefit to both the listener as well as the sharer (Jalongo, 1995). Mentors have also been shown to help other educators when utilized in FD (Sood et al., 2016).

5.6 Implications for faculty development and universities to improve the quality of teaching

As part of the critical theory paradigm and the last aim of this thesis, it is important to consider the applications that may be implemented to provide solutions, based on the results (Table 10). Again, the focus is on giving an ongoing voice to the unheard educator and proposing changes that may better their situation (Bunniss & Kelly, 2010). This was done to support all types of faculty as they try to improve their teaching.

5.6.1 Sessional faculty

The results from this research on SF support the importance of many of the suggestions of Harvey (2017): (1) ask for or demand contact and demographic

information on SF; (2) seek their input to better know and understand them and their FD needs; (3) raise awarenss of this critical cohort at university, department and FD levels; (4) provide context-specific FD; (5) respond with multiple and flexible modes of delivery; and (6) develop a community of practice. The results from this research suggest that efforts should be made to secure contact information on SF and the results support the use of needs assessments and focus groups to explore SF support and FD needs. The results also suggest that CTL staff may need to develop and provide condensed, context-specific FD in convenient digital formats. Specifically, classroom SF may benefit from FD courses in general pedagogy and ideas specfic to their course, possibly provided by advice from a faculty developer or mentor/“go-to“ person within their department. Classroom SF may also benefit from access to rubrics and classroom resources. Clinical SF may benefit from courses on how to teach in a clinical setting and how to provide constructive feedback. The importance of context-specific orientations, departmental and student feedback on teaching, and enhanced communication with SF suggests that departments may need to make this a priority as a form of showing they care about SF and about the quality of their teaching. The results of this thesis also supported the heterogeneity of SF as seen in the needs for connectedness and appreciation to enhance educator identity. Universities may need to consider this and find ways to provide for their needs accordingly if they want to improve the quality of teaching. A system that ranks SF based on their classroom teaching responsibilites, as suggested by this research, may help universities serve the needs of SF more accurately. Compensation for the development of teaching skills is also mentioned across the SF literature as an issue important to address by universities (Dixon et al., 2015; Drowos et al., 2017; Hoyt, 2012; Jolley et al., 2014; McCullough et al., 2015; Pollart et al., 2015).

Others have suggested that departments and universities consider a centralized support system for SF (Bunton & Corrice, 2011; Pollart et al., 2015) with continually updated contact information. This could be developed at both the university and department levels and could work with CTL staff. Besides heightening awareness of the importance of educator identity and FD among SF, the support system could develop resources specific to different types of SF, such as orientations, webpages, evidence-based pedagogical strategies, feedback strategies and rubrics while providing classroom and clinical observations, and mentoring (Buch et al., 2017; Hoyt, 2012; Santisteban & Egues, 2014). The support system could operate primarily as a digital source so that all SF had convenient access. Another idea would be to consider the BLASST (Benchmarking leadership and advancement of standards for sessional teaching) initiative developed in Australia and adapt it for use in the health sciences. The BLASST initiative uses “quality of learning and teaching”,

"sessional support" and "sustainability" as its guiding principles and establishes criteria that are measured at the "unsustainable", "minimum standard" and "good practice" level (Harvey et al., 2013). Using ideas based on the results and ideas from the literature could move SF more towards a health science educator identity to improve the quality of teaching.

5.6.2 Tenured faculty and all faculty

Some suggestions are specific to TF. The TF model emphasized the possibility that it could be helpful to provide more forms of appreciation for efforts to improve teaching. Universities may want to look for ways to support TF by acknowledging their efforts to improve their teaching, which may not only improve their openness to improve but also their educator identity. This kind of acknowledgement could be in various forms, including certificates, awards, feedback, and compensation. The promotion structure may also need to be re-structured to place more value on teaching. The TF model also suggests that a positive teaching culture within a department may be helpful to improve teaching. Others have suggested that supportive relationships may contribute to both individual and shared success to improve teaching methods and quality (Steinert et al., 2016).

Finally, some suggestions can be made for all faculty. Others have suggested that new faculty (both SF and TF) in the health sciences may have significant clinical knowledge but it cannot be assumed that they are equipped with skills to effectively teach (Knott et al., 2015). It has been suggested that universities should support them in the transition by providing context-dependent orientations and making them aware of their need to learn the skill of teaching (Browne et al., 2017; Riveros-Perez & Rodriques-Diaz, 2018). The results of this research suggest that new educators may benefit from CTL staff providing relevant and convenient FD to the new educator prior to beginning teaching. This initial FD could include education on motivational strategies using the MUSIC Model. Universities may then contribute to improvement in teaching and student learning by improving awareness of FD offerings and encouraging ongoing participation in FD. Specific FD offerings from the CTL have already been suggested for specific types of SF by the results of this research. Others suggest that ongoing needs assessments are essential to keep FD offerings relevant to the PFDNs of faculty (Sorinola et al., 2017), especially SF who may be harder to contact and often forgotten. The results of this research also suggest that all faculty, and especially SF, may benefit from universities and departments working to provide supportive teaching communities.

All faculty may benefit from FD that addresses their PFDNs and enhances the application of motivational principles. This study suggests that universities and departments may need to consider ways to teach their students generic skills

(i.e., self-management, digital literacy, giving and receiving constructive feedback, working in groups) and active learning strategies as part of existing classes or in a required course for health science students. Departments and CTLs may also need to consider the promotion of successful teaching stories and provide teaching mentors, while universities may need to consider providing assistant teachers automatically for large courses. The study results suggest that CTL staff could consider offering courses in the following: (1) how to engage in reflective practice; (2) how to motivate students (using the MUSIC Model); (3) how to support students' self-regulation and autonomy (to transition to more independent learning); (4) how to support effective peer feedback; (5) how to provide effective feedback; and (6) how to use technology to offer choices and provide feedback.

Last, it was clear in both the sessional and motivational principle arms of this study that these individuals desired to be good/better educators. Universities and FD could consider ways to celebrate and uphold the motivations and identity of their health science educators. Steinert et al. (2019) suggest that identity is central, and that FD needs to ask questions related to identity (as done in this thesis), use longitudinal programs that incorporate identity formation, build community and networking, promote reflection, and capitalize on mentorship. Table 10 provides a summary of all the recommendations made with indications of responsibility at the university, department, and CTL levels.

5.7 Strengths, limitations of research and methodology

To the best of my knowledge, this research was the first to examine the differences in FD needs, motivations, identity, and attitudes for SF and TF in the health sciences. It was also the first to examine the attitudes of all health science faculty towards the application of motivational principles. Both of these foci were with an emphasis on improving the quality of teaching. A strength is that this survey explored not only perceived needs but also attitudes, motivations, and educator identity in SF and TF. The SEM analysis helped reveal the importance of connectedness and appreciation as predictors of educator identity and openness to improve teaching. However, the different models for TF and SF seemed to highlight the importance of the working environment for each type of faculty and focused on the important issues for both types of faculty. Finally, all types of health science faculty were not only surveyed quantitatively but also interviewed in focus groups that allowed participants to add a "voice" that developed a depth of understanding, which was not possible with purely quantitative analyses. This is seen as a strength of this analysis for both parts of this research – seeing overall trends but also hearing the voice of the individual, which included considering the context in which the educator operates. This

research, therefore, may contribute possible applications at the university, department and FD levels, consistent with the critical theory paradigm. For these reasons, the suggestions made here have the possibility of making a difference in the quality of teaching in the health sciences. This research was also transdisciplinary within the health science fields, pointing out common issues for health science educators, and cross disciplinary in bringing in the fields of educational psychology and motivation science into the health sciences.

The main limitation is that this study was conducted at one institution (University of Iceland) in one country (Iceland). Therefore, it cannot be said definitively that some results were not due to cultural differences or local issues. However, similar results in the literature were discussed, suggesting that the issues being addressed may be generalizable to other contexts. The response rate to the survey also limits generalizability, although the response rate was similar to other survey needs assessment studies. In future research, a shorter survey measure could be used, as the respondents' completion rate indicated there was some survey fatigue (298 entered the survey but 238 completed). There was also the issue of self-selection to participate in both the survey and the focus groups by educators already interested in education, which may result in biased results. This is a common limitation of survey research. As all the data was self-reported, there is the question about what people report versus what they actually do. The sample size of the TF group in the SEM computations was less than the recommended 5 participants per estimated parameter (Bentler & Chou, 1987) or a minimum of 200, as recommended in the literature (Boomsma, 1985). The use of smaller groups may be justified because the TF sample was small to begin with (n = 212), the TF response rate was reasonable (37%) compared to other needs assessments, the model was simple, all loadings were fixed to 1, and the correlations were strong (Kenny, 2015). The use of only PTs in the SF focus groups could limit the discussion to that profession: however, the findings were not specific to PT and have been reported elsewhere in the general and nursing literature on SF (Dixon et al., 2015; Elder et al., 2016; Hitch et al., 2018). The lack of representation of the smaller departments at SHS in both focus groups also limited the generalizability. Finally, this study resulted in suggestions for change to improve the quality of teaching but does not provide proof that these suggestions will improve the quality of teaching.

6 Conclusions

This thesis added to the literature by addressing areas that may affect the quality of teaching in the health sciences by using a mixed methods design. The research aims focused on two areas: the support for SF and the support for educators applying motivational principles. These were identified as two key areas in which FD, departments, and universities could make improvements that could result in better support of educators. A critical theory research paradigm was adopted to bring attention to these areas that are not often addressed with the focus on providing suggestions that may improve the support of these educators.

The first three aims of the thesis examined SF. SF were chosen due to their prominence in the health science professions, the lack of SF research, the contexts where they teach, and the assumptions within the health sciences that clinical competence is similar to educator competence. Utilizing a needs assessment that included questions on motivations, attitudes and identity of health science educators made it possible to compare TF and SF responses. The data collected were utilized for a comparison study in Paper I, pointing to the differences between SF and TF and providing ideas for addressing the needs of SF. Similarly, the data were utilized in Paper II to test the predictive relationships of the constructs of connectedness, appreciation, identity as a health science educator and an openness to improve. Differing models for TF and SF again pointed to differences that were mainly attributed to the working environments of these educators. The TF model demonstrated the importance of both appreciation for teaching and a supportive teaching environment for educator identity and an openness to improve teaching. The explanations for the weaker SF model were speculated to be because of the isolation that many SF complain of and the tension between being a “clinician who teaches” and an identity as an educator. Focus group discussions with SF were then analyzed with thematic analysis to dig deeper into the needs for connectedness, appreciation and support in Paper III, exposing differences and similarities between SF who teach in the classroom and SF who teach in the clinic. These differences were accentuated in classroom teachers who taught more, leading to the suggestion of SF levels of support. The final list of suggestions was built on data and input from SF, giving them a voice for which they were appreciative. Central to the results was educator identity and its possible link to an openness to improve teaching. These suggestions represent areas where support of SF may be improved with the goal of improving teaching.

The fourth and fifth aim of the thesis examined faculty attitudes towards their responsibilities to apply the motivational principles set forth in the MUSIC Model and factors that hindered their application. Data from the needs assessment were analyzed for this part of the thesis as well. Faculty generally felt responsible to generate interest in the topics, explain the usefulness of the content, and demonstrate caring and respect for their students. They felt less responsible to offer choices and to support students' belief in their success with organization and timely feedback. The focus group discussions that followed revealed that educators saw hindering factors to offering choices and providing feedback that were not under their control, thereby explaining the feeling of less responsibility. Suggestions based on addressing these hindering factors and utilizing factors that encourage application of motivational principles are provided that may possibly support these educators.

As the final aim, together, suggestions were made to universities, departments and FD to address the personal, relational and contextual factors that may influence faculty attitudes and teaching practices. A key thread throughout is the desire to be good/better educators by all faculty. Addressing the issues that hinder faculty and celebrating the factors that motivate them may help them be better educators and may improve the quality of teaching.

For future research, it might be of interest to explore whether or not the "Benchmarking leadership and advancement of standards for sessional teaching" (BLASST) initiative from Australia could be modified to specifically address the issues of health science SF (Harvey et al., 2013). As mentioned in the *Discussion*, the principle of educators caring and respecting the goals of students as a motivating factor in the health sciences might need to be explored further. It would also be of interest to see if similar responses to motivational principles would be seen in other health science schools, across multiple health science schools, and if there are differences when comparing to schools outside the health sciences. Finally, the interventions suggested by this thesis could be tested in randomized controlled studies to see if they do improve educator identity and the quality of teaching.

References

Adler, S. R., Chang, A., Loeser, H., Cooke, M., Wang, J., & Teherani, A. (2015). The impact of intramural grants on educators' careers and on medical education innovation. *Academic Medicine, 90*(6), 827-831. https://doi.org/10.1097/acm.0000000000000685

Artino, A. R., La Rochelle, J. S., Dezee, K. J., & Gehlback, H. (2014). Developing questionnaires for educational research: AMEE guide no. 87. *Medical Teacher, 36*(6), 463-474. https://doi.org/10.3109/0142159X.2014.889814

Baldwin, R. G., & Wawrzynski, M. R. (2011). Contingent faculty as teachers: What we know; what we need to know. *American Behavioral Scientist, 55*(11), 1485-1509. https://doi.org/10.1177/0002764211409194

Bearman, M., Tai, J., Kent, F., Edouard, V., Nestel, D., & Molloy, E. (2018). What should we teach the teachers? Identifying the learning priorities of clinical supervisors. *Advances in Health Science Education, 23*(1), 29-41. https://doi.org/10.1007/s10459-017-9772-3

Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine, 25*(24), 3186-3191. https://doi.org/10.1097/00007632-200012150-00014

Beck Dallaghan, G. L., Alerte, A. M., Ryan, M. S., Patterson, P. B., Petershack, J., Christy, C., Mills, W. A., Jr., Paul, C. R., Peltier, C., Stamos, J. K., Tenney-Soeiro, R., & Vercio, C. (2017). Recruiting and retaining community-based preceptors: A multicenter qualitative action study of pediatric preceptors. *Academic Medicine, 92*(8), 1168-1174. https://doi.org/10.1097/acm.0000000000001667

Behar-Horenstein, L., Garvan, C., Catalanotto, F., & Hudson-Vassell, C. (2014). The role of needs assessment for faculty development initiatives. *Journal of Faculty Development, 28*(2), 75-86.

Bentler, P. M., & Chou, C.-P. (1987). Practical issues in structural modeling. *Sociological Methods Research, 16*(1), 78-117.

Berman, A. C. (2015). Good teaching is good teaching: A narrative review for effective medical educators. *Anatomical Sciences Education, 8*(4), 386-394. https://doi.org/10.1002/ase.1535

Bigbee, J. L., Rainwater, J., & Butani, L. (2016). Use of a needs assessment in the development of an interprofessional faculty development program. *Nurse Educator, 41*(6), 324-327. https://doi.org/10.1097/nne.0000000000000270

Bond, N. (2015). Developing a faculty learning community for non-tenure track professors. *International Journal of Higher Education, 4*(4), 1-12. https://doi.org/10.5430/ijhe.v4n4p1

Boomsma, A. (1985). Nonconvergence, improper solutions, and starting values in lisrel maximum likelihood estimation. *Psychometrika, 50*(2), 229-242. https://doi.org/10.1007/bf02294248

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77-101. https://doi.org/10.1191/1478088706qp063oa

Browne, J., Webb, K., & A., B. (2017). Making the leap to medical education: A qualitative study of medical educators' experiences. *Medical Education, 52*(2), 216-226. https://doi.org/10.1111/medu.13470

Buch, K., McCullough, H., & Tamberelli, L. (2017). Understanding and responding to the unique needs and challenges facing adjunct faculty: A longitudinal study. *International Journal of Education Research, 16*(10), 27-40. https://doi.org/10.26803/ijlter.16.10.3

Bunniss, S., & Kelly, D. R. (2010). Research paradigms in medical education research. *Medical Education, 44*(4), 358-366. https://doi.org/10.1111/j.1365-2923.2009.03611.x

Bunton, S. A., & Corrice, A. M. (2011). *An exploration of part-time U.S. Medical school faculty: A thematic overview*. Retrieved from: https://www.aamc.org/data-reports/analysis-brief/report/exploration-satisfaction-and-experiences-part-time-us-medical-school-faculty

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The use of triangulation in qualitative research. *Oncology Nursing Forum, 41*(5), 545-547. https://doi.org/10.1188/14.Onf.545-547

Chittum, J. R., McConnell, K. D., & Sible, J. (2017). Scale(ing)-up teaching: A case study of student motivation in an undergraduate course. *Journal of Excellence in College Teaching, 28*(3).

Condon, W., Iverson, E. R., Manduca, C. A., Rutz, C., Willett, G., Huber, M. T., & Haswell, R. (2016). *Faculty development and student learning: Assessing the connections.* Indiana University Press.

Cook, D. A., & Artino Jr, A. R. (2016). Motivation to learn: An overview of contemporary theories. *Medical Education, 50*(10), 997-1014. https://doi.org/10.1111/medu.13074

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Sage.

Dahlstrom, J., Dorai-Raj, A., McGill, D., Owen, C., Tymms, K., & Watson, D. A. (2005). What motivates senior clinicians to teach medical students? *BMC Medical Education, 5*, 27. https://doi.org/10.1186/1472-6920-5-27

DaRosa, D. A., Skeff, K., Friedland, J. A., Coburn, M., Cox, S., Pollart, S., O'Connell, M., & Smith, S. (2011). Barriers to effective teaching. *Academic Medicine, 86*(4), 453-459. https://doi.org/10.1097/ACM.0b013e31820defbe

Deci, E., & Ryan, R. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology, 49*, 182-185. https://doi.org/10.1037/a0012801

Dimock, M. (2019). Defining generations: Where millennials end and generation z begins. *Pew Research Center.* https://pewrsr.ch/2szqtJz. Accessed on February 22, 2020

Dixon, K. A., Cotton, A., Moroney, R., & Salamonson, Y. (2015). The experience of sessional teachers in nursing: A qualitative study. *Nurse Education Today, 35*(11), 1097-1101. https://doi.org/10.1016/j.nedt.2015.06.008

Downing, S. M. (2003). Validity: On meaningful interpretation of assessment data. *Medical Education, 37*(9), 830-837. https://doi.org/10.1046/j.1365-2923.2003.01594.x

Drowos, J., Baker, S., Harrison, S. L., Minor, S., Chessman, A. W., & Baker, D. (2017). Faculty development for medical school community-based faculty: A council of academic family medicine educational research alliance study exploring institutional requirements and challenges. *Academic Medicine, 92*(8), 1175-1180. https://doi.org/10.1097/ACM.0000000000001626.

Duffy, R. (2013). Nurse to educator? Academic roles and the formation of personal academic identities. *Nurse Education Today, 33*, 620-624. https://doi.org/10.1016/j.nedt.2012.07.020

Dybowski, C., & Harendza, S. (2014). "Teaching is like nightshifts...": A focus group study on teaching motivations of clinicians. *Teaching and Learning in Medicine, 26*(4), 393-400. https://doi.org/10.1080/10401334.2014.910467

Dybowski, C., & Harendza, S. (2015). Validation of the physician teaching motivation questionnaire (PTMQ). *BMC Medical Education, 15*(166). https://doi.org/http://doi.org/10.1186/s12909-015-0448-5

Elder, S. J., Svoboda, G., Ryan, L. A., & Fitzgerald, K. (2016). Work factors of importance to adjunct nursing faculty. *Journal of Nursing Education, 55*(5), 245-251. https://doi.org/10.3928/01484834-20160414-02

Elmberger, A., Bjorck, E., Liljedahl, M., Nieminen, J., & Bolander Laksov, K. (2019). Contradictions in clinical teachers' engagement in educational development: An activity theory analysis. *Advances in Health Science Education, 24*(1), 125-140. https://doi.org/10.1007/s10459-018-9853-y

Elo, S., & Kyngas, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107-115. https://doi.org/10.1111/j.1365-2648.2007.04569.x

European University Institute. (2018). United Kingdom, academic career structure. https://www.eui.eu/ProgrammesAndFellowships/AcademicCareersObservatory/AcademicCareersbyCountry/UnitedKingdom. Accessed on January 19, 2019

Feldman, K. A., & Paulsen, M. B. (1999). Faculty motivation: The role of a supportive teaching culture. *New Directions for Teaching and Learning, 78*, 69-78. https://doi.org/10.1002/tl.7807

Forbes, M. O., Hickey, M. T., & White, J. (2010). Adjunct faculty development: Reported needs and innovative solutions. *Journal of Professional Nursing, 26*(2), 116-124. https://doi.org/http://doi.org/10.1016/j.profnurs.2009.08.001

Fuller, R., Brown, M. K., & Smith, K. (Eds.). (2017). *Adjunct faculty voices: Cultivating professional development and community at the front lines of higher education*. Stylus Publishing.

Gravetter, F. J., Wallnau, L. B., & Forzano, L. B. (2016). *Essentials of statistics for the behavioral sciences* (9th ed.). Cengage Learning.

Harvey, M. (2017). Quality learning and teaching with sessional staff: Systematising good practice for academic development. *International Journal for Academic Development, 22*(1), 1-6. https://doi.org/10.1080/1360144X.2017.1266753

Harvey, M., Luzia, K., Parker, N., Brown, N., & McKenzie, J. (2013). Benchmarking with the BLASST sessional staff standards framework. *Journal of University Teaching and Learning Practice, 10*.

Heffernan, T. A. (2018). Approaches to career development and support for sessional academics in higher education. *International Journal of Academic Development, 23*(4), 312-323. https://doi.org/10.1080/1360144X.2018.1510406

Hidi, S., & Renniger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist, 41*(2). https://doi.org/10.1207/s15326985ep4102_4

Hitch, D., Mahoney, P., & Macfarlane, S. (2018). Professional development for sessional staff in higher education: A review of current evidence. *Higher Education Research and Development, 37*(2), 285-300. https://doi.org/10.1080/07294360.2017.1360844

Hoyt, J. E. (2012). Predicting the satisfaction and loyalty of adjunct faculty. *Journal of Continuing Higher Education, 60*(3), 132-142. https://doi.org/10.1080/07377363.2013.722417

Hu, L. t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Hurst, K. M. (2010). Experiences of new physiotherapy lecturers making the shift from clinical practice into academia. *Physiotherapy, 96*, 240-247. https://doi.org/10.1016/j.physio.2009.11.009

Huwendiek, S., Mennin, S., Dern, P., Ben-David, M. F., Van Der Vleuten, C., Tonshoff, B., & Nikendei, C. (2010). Expertise, needs and challenges of medical educators: Results of an international web survey. *Medical Teacher, 32*(11), 912-918. https://doi.org/10.3109/0142159x.2010.497822

Iacobucci, D. (2009). Everything you always wanted to know about SEM (structural equations modeling) but were afraid to ask. *Journal of Consumer Psychology, 19*(4), 673-680. https://doi.org/10.1016/j.jcps.2009.09.002

Jalongo, M. K. (1995). *Teachers' stories: From personal narrative to professional insight*. Jossey-Bass Publishers.

Jauregui, J., Watsjold, B., Welsh, L., Ilgen, J. S., & Robins, L. (2020). Generational 'othering': The myth of the millennial learner. *Medical Education, 54*(1), 60-65. https://doi.org/10.1111/medu.13795

Jolley, M. R., Cross, E., & Bryant, M. (2014). A critical challenge: The engagement and assessment of contingent, part-time adjunct faculty professors in United States community colleges. *Community College Journal of Research and Practice, 38*(2-3), 218-230. https://doi.org/10.1080/10668926.2014.851969

Jones, B. D. (2009). Motivating students to engage in learning: The MUSIC model of academic motivation. *International Journal of Teaching and Learning in Higher Education, 21*(2), 272-285.

Jones, B. D. (2016). User guide for assessing the components of the MUSIC model of motivation. http://www.theMUSICmodel.com. Accessed on June 15, 2017

Jones, B. D. (2018). *Motivating students by design - practical strategies for professors* (2nd ed.). CreateSpace.

Jones, B. D., Li, M., & Cruz, J. M. (2017). A cross-cultural validation of the music model of academic motivation inventory: Evidence from Chinese- and Spanish-speaking university students. *International Journal of Educational Psychology, 6*(1), 366-385. https://doi.org/10.17583/ijep.2017.2357

Jones, B. D., Paretti, M. C., Hein, S. F., & Knott, T. W. (2010). An analysis of motivation constructs with first-year engineering students: Relationships among expectancies, values, achievement, and career plans. *Journal of Engineering Education, 99*(4), 319-336. https://doi.org/10.1002/j.2168-9830.2010.tb01066.x

Jones, B. D., Ruff, C., & Osborne, J. W. (2015). Fostering students' identification with mathematics and science. In K. A. Renninger, M. Nieswandt, & S.

Hidi (Eds.), *Interest in mathematics and science learning* (pp. 331-352). American Educational Research Association.

Jones, B. D., & Skaggs, G. E. (2016). Measuring students' motivation: Validity evidence for the MUSIC model of academic motivation inventory. *International Journal for the Scholarship of Teaching and Learning, 10*(1), 7. https://doi.org/10.20429/ijsotl.2016.100107

Kane, R., Sandretto, S., & Heath, C. (2004). An investigation into excellent tertiary teaching: Emphasising reflective practice. *Higher Education, 47*(3), 283-310. https://doi.org/10.1023/b:High.0000016442.55338.24

Kenny, D. A. (2015). Measuring model fit. http://davidakenny.net/cm/fit.htm. Accessed on Dec 15, 2018

Kezar, A., & Maxey, D. (2014). Troubling ethical lapses: The treatment of contingent faculty. *Change, July/August*, 34-37. https://doi.org/10.1080/00091383.2014.925761

Kezar, A., & Sam, C. (2010). *Understanding the new majority of non-tenure-track faculty in higher education: Demographics, experience, and plans of action (ASHE higher education report)* (Vol. 36(4)). Jolley-Bass.

Kline, T. J. B. (2005). *Pyschological testing*. Sage.

Knott, G., Crane, L., Heslop, I., & Glass, B. D. (2015). Training and support of sessional staff to improve quality of teaching and learning at universities. *American Journal of Pharmaceutical Education, 79*(5), 72. https://doi.org/10.5688/ajpe79572

Kusurkar, R. A., & Croiset, G. (2015). Autonomy support for autonomous motivation in medical education. *Medical Education Online, 20*, 27951. https://doi.org/10.3402/meo.v20.27951

Kusurkar, R. A., Ten Cate, T. J., van Asperen, M., & Croiset, G. (2011). Motivation as an independent and a dependent variable in medical education: A review of the literature. *Medical Teacher, 33*(5), e242-262. https://doi.org/10.3109/0142159x.2011.558539

Leigh, J. (2014). "I still feel isolated and disposable": Perceptions of professional development for part-time teachers in HE. *Journal of Perspectives in Applied Academic Practice, 2*(2), 10-16.

Lieff, S., Baker, L., Mori, B., Egan-Lee, E., Chin, K., & Reeves, S. (2012). Who am i? Key influences on the formation of academic identity within a faculty development program. *Medical Teacher, 34*(3), e208-215. https://doi.org/10.3109/0142159x.2012.642827

Linder, K. E. (2012). Creating space for adjunct faculty: The multiple roles of centers for teaching and learning. *Journal on Centers for Teaching and Learning, 4*, 33-59.

Linzer, M., Warde, C., Alexander, R. W., Demarco, D. M., Haupt, A., Hicks, L., Kutner, J., Mangione, C. M., Mechaber, H., Rentz, M., Riley, J., Schuster,

B., Solomon, G. D., Volberding, P., & Ibrahim, T. (2009). Part-time careers in academic internal medicine: A report from the association of specialty professors part-time careers task force on behalf of the Alliance for Academic Internal Medicine. *Academic Medicine, 84*(10), 1395-1400. https://doi.org/10.1097/ACM.0b013e3181b6bf8c

Love, L. M., Haggar, F. L., McBrien, S. B., Buzalko, R. J., Hartman, T. L., Shope, R. J., & Beck Dallaghan, G. L. (2018). Supporting the professional identity of medical science educators: Understanding faculty motivations for quality improvement in teaching. *Medical Science Educator, 28*(4), 655-665. https://doi.org/10.1007/s40670-018-0609-3

Lyness, J. M., Lurie, S. J., Ward, D. S., Mooney, C. J., & Lambert, D. R. (2013). Engaging students and faculty: Implications of self-determination theory for teachers and leaders in academic medicine. *BMC Medical Education, 13*, 151.

Mann, K., Gordon, J., & MacLeod, A. (2009). Reflection and reflective practice in health professions education: A systematic review. *Advances in Health Sciences Education, 14*(4), 595-621. https://doi.org/10.1007/s10459-007-9090-2

Marshall, N. (2012). The use of sessional teachers in universities: Faculty of the Built Environment, University of New South Wales Australia. *Journal of International Education Research, 8*. https://doi.org/10.19030/jier.v8i3.7101

Martella, R. C., Nelson, J. R., Morgan, R. L., & Marchand-Martella, N. E. (2013). *Understanding and interpreting educational research*. Guilford Press.

May, M., Mand, P., Biert, z. F., Hummers-Pradier, E., & Kruschinski, C. (2012). A survey to assess family physicians' motivation to teach undergraduates in their practices. *PLoS ONE, 7*(9), e45846.

McCullough, B., Marton, G. E., & Ramnanan, C. J. (2015). How can clinician-educator training programs be optimized to match clinician motivations and concerns? *Advances in Medical Education and Practice, 6*, 45-54. https://doi.org/10.2147/amep.s70139

Meixner, C., Kruck, S. E., & Madden, L. T. (2010). Inclusion of part-time faculty for the benefit of faculty and students. *College Teaching, 58*(4), 141-147. https://doi.org/10.1080/87567555.2010.484032

Murray, C., Stanley, M., & Wright, S. (2014). The transition from clinician to academic in nursing and allied health: A qualitative meta-analysis. *Nurse Education Today, 34*, 389-395.

Nofziger, A. C., Naumburg, E. H., Davis, B. J., Mooney, C. J., & Epstein, R. M. (2010). Impact of peer assessment on the professional development of medical students: A qualitative study. *Academic Medicine, 85*(1), 140-147. https://doi.org/10.1097/ACM.0b013e3181c47a5b

Nordic National Recognition Information Centres. (2019). The Icelandic higher education system. https://norric.org/nordbalt/iceland. Accessed on Dec 21, 2019

O'Sullivan, P. S., & Irby, D. M. (2011). Reframing research on faculty development. *Academic Medicine, 86*(4), 421-428. https://doi.org/10.1097/ACM.0b013e31820dc058

O'Sullivan, P. S., & Irby, D. M. (2014). Identity formation of occasional faculty developers in medical education: A qualitative study. *Academic Medicine, 89*(11), 1467-1473. https://doi.org/10.1097/ACM.0000000000000374

Oleson, A., & Hora, M. T. (2014). Teaching the way they were taught? Revisiting the sources of teaching knowledge and the role of prio experience in shaping faculty teaching practices. *Higher Education, 68*, 29. https://doi.org/10.1007/s10734-013-9678-9

Olinsky, A., Chen, S., & Harlow, L. (2003). The comparative efficacy of imputation methods for missing data in structural equation modeling. *European Journal of Operational Research, 151*(1), 53-79. https://doi.org/10.1016/S0377-2217(02)00578-7

Pelaccia, T., & Viau, R. (2017). Motivation in medical education. *Medical Teacher, 39*(2), 136-140. https://doi.org/10.1080/014219X.2016.1248924

Pettit, R. K., McCoy, L., & Kinney, M. (2017). What millennial medical students say about flipped learning. *Advances in Medical Education and Practice, 8*, 487-497. https://doi.org/10.2147/AMEP.S139569

Pizzimenti, M. A., & Axelson, R. D. (2015). Assessing student engagement and self-regulated learning in a medical gross anatomy course. *Anatomical Sciences Education, 8*(2), 104-110. https://doi.org/10.1002/ase.1463

Pollart, S. M., Dandar, V., Brubaker, L., Chaudron, L., Morrison, L. A., Fox, S., Mylona, E., & Bunton, S. A. (2015). Characteristics, satisfaction, and engagement of part-time faculty at U.S. Medical schools. *Academic Medicine, 90*(3), 355-364. https://doi.org/10.1097/acm.0000000000000470

Putwain, D., & Remedios, R. (2014). The scare tactic: Do fear appeals predict motivation and exam scores? *School Psychology Quarterly, 29*(4), 503-516. https://doi.org/10.1037/spq0000048

Riveros-Perez, E., & Rodriques-Diaz, J. (2018). The journey from clinician to undergraduate medical educator involves four patterns of transformation. *Advances in Medical Education and Practice, 9*, 7-15. https://doi.org/10.2147/AMEP.S146384

Rodgers, C. R., & Scott, K. H. (2008). The development of the personal self and professional identity in learning to teach. In M. Cochran-Smith, S. Feiman-Nemser, & D. J. McIntyre (Eds.), *Handbook of research on*

teacher education: Enduring questions in changing contexts (pp. 732–755). Routledge/Taylor & Francis Group.

Rognvaldsson, S. (2016). *Kennslukonnun felags laeknanema (teaching survey - sponsored by medical student society)*. Laeknadeild (Medical School). University of Iceland. Reykjavik, Iceland.

Ruzycki, S. M., Desy, J. R., Lachman, N., & Wolanskyj-Spinner, A. P. (2019). Medical education for millennials: How anatomists are doing it right. *Clinical Anatomy, 32*(1), 20-25. https://doi.org/10.1002/ca.23259

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78.

Ryan, S., Burgess, J., Connell, J., & Groen, E. (2013). Casual academic staff in an Australian university: Marginalised and excluded. *Tertiatry Education and Management, 19*(2), 161-175. https://doi.org/10.1080/13583883.2013.783617

Sabel, E., & Archer, J. (2014). "Medical education is the ugly duckling of the medical world" and other challenges to medical educators' identity construction: A qualitative study. *Academic Medicine, 89*. https://doi.org/10.1097/acm.0000000000000420

Santisteban, L., & Egues, A. L. (2014). Cultivating adjunct faculty: Strategies beyond orientation. *Nursing Forum, 49*(3), 152-158. https://doi.org/10.1111/nuf.12106

Schiekirka-Schwake, S., Anders, S., von Steinbüchel, N., Becker, J. C., & Raupach, T. (2017). Facilitators of high-quality teaching in medical school: Findings from a nation-wide survey among clinical teachers. *BMC Medical Education, 17*(1), 178. https://doi.org/10.1186/s12909-017-1000-6

Schinka, J. A., & Velicer, W. F. (Eds.). (2003). *Research methods in psychology*. John Wiley & Sons.

Schönwetter, D. J., Hamilton, H., & Sawatsky, J. V. (2015). Exploring professional development needs of educators in the health sciences professions. *Journal of Dental Education, 79*(2), 113-123.

Schram, A. B. (2014). A mixed methods content analysis of the research literature in science education. *International Journal of Science Education, 36*(15), 2619-2638. https://doi.org/10.1080/09500693.2014.908328

Schram, A. B., & Jones, B. D. (2016). A cross-cultural adaptation and validation of the Icelandic version of the MUSIC model of academic motivation inventory. *Icelandic Journal of Education, 25*(2), 159-181.

Sigurgeirsdottir, S., Waagfjoreth, J., & Maresso, A. (2014). Iceland: Health system review. *Health Systems in Transition, 16*(6), 1-184.

Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology, 71*(2), 549-570.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structual equation models. *Sociological Methodology, 13*, 290-312.

Sood, A., Tigges, B., & Helitzer, D. (2016). Mentoring early-career faculty fesearchers is important-but first "train the trainer". *Academic Medicine, 91*(12), 1598-1600. https://doi.org/10.1097/acm.0000000000001264

Sorinola, O., Thistlethwaite, J., Davies, D., & Peile, E. (2017). Realist evaluation of faculty development for medical educators: What works for whom and why in the long-term. *Medical Teacher, 39*(4), 422-429. https://doi.org/10.1080/0142159X.2017.1293238

Stalmeijer, R. E., McNaughton, N., & Van Mook, W. N. (2014). Using focus groups in medical education research: AMEE guide no. 91. *Medical Teacher, 36*(11), 923-939. https://doi.org/10.3109/0142159x.2014.917165

Starr, S., Ferguson, W. J., Haley, H. L., & Quirk, M. (2003). Community preceptors' views of their identities as teachers. *Academic Medicine, 78*(8), 820-825. https://doi.org/10.1097/00001888-200308000-00017

Steinert, Y. (2014). *Faculty develpment in the health professions: A focus on research and practice* (Vol. 11). Springer.

Steinert, Y. (2017). Faculty development: From program design and implementation to scholarship. *GMS Journal of Medical Education, 34*(4), Doc49. https://doi.org/10.3205/zma001126

Steinert, Y., & Macdonald, M. E. (2015). Why physicians teach: Giving back by paying it forward. *Medical Education, 49*(8), 773-782. https://doi.org/10.1111/medu.12782

Steinert, Y., Mann, K., Anderson, B., Barnett, B. M., Centeno, A., Naismith, L., Prideaux, D., Spencer, J., Tullo, E., Viggiano, T., Ward, H., & Dolmans, D. (2016). A systematic review of faculty development initiatives designed to enhance teaching effectiveness: A 10-year update: BEME guide no. 40. *Medical Teacher, 38*(8), 769-786. https://doi.org/10.1080/0142159x.2016.1181851

Steinert, Y., O'Sullivan, P. S., & Irby, D. M. (2019). Strengthening teachers' professional identities through faculty development. *Academic Medicine, 94*(7), 963-968. https://doi.org/10.1097/acm.0000000000002695

Stone, S., Ellers, B., Holmes, D., Orgren, R., Qualters, D., & Thompson, J. (2002). Identifying oneself as a teacher: The perceptions of preceptors. *Medical Education, 36*(2), 180-185. https://doi.org/10.1046/j.1365-2923.2002.01064.x

Taylor, E. W., Tisdell, E. J., & Gusic, M. E. (2007). Teaching beliefs of medical educators: Perspectives on clinical teaching in pediatrics. *Medical Teacher, 29*(4), 371-376. https://doi.org/10.1080/01421590701510553

Thirolf, K. Q. (2013). How faculty identity discourses of community college part-time faculty change over time. *Community College Journal of Research and Practice, 37*(3), 177-184. https://doi.org/10.1080/10668926.2013.739511

Tu, H.-W., & Jones, B. D. (2017). Redesigning a neuroscience laboratory course for multiple sections: An action research project to engage students. *Journal of Undergraduate Neuroscience Education, 15*(2), A137-A143.

University of Iceland. (2016a). Employees. https://www.hi.is/kynningarefni/starfsmenn. Accessed on January 12, 2020

University of Iceland. (2016b). *Strategy of the University of Iceland 2016-21*. Retrieved from: http://english.hi.is/files/bryndjo/baeklingar/hi21_brochure_ens-01-web.pdf

Valle, M., & Fuchs, T. (2015). Teaching and learning communities: Empowering adjuncts and ensuring quality. *Journal of Education and Human Development, 4*(1), 1-6. https://doi.org/10.15640/jehd.v4n1a1

van den Berg, B. A. M., Bakker, A. B., & ten Cate, T. J. (2013). Key factors in work engagement and job motivation of teaching faculty at a university medical centre. *Perspectives on Medical Education, 2*, 264-275. https://doi.org/10.1007/s40037-013-0080-1

van Lankveld, T., Schoonenboom, J., Croiset, G., Volman, M., & Beishuizen, J. (2017a). The role of teaching courses and teacher communities in strengthening the identity and agency of teachers at university medical centres. *Teaching and Teacher Education, 67*, 399-409. https://doi.org/10.1016/j.tate.2017.07.011

van Lankveld, T., Schoonenboom, J., Volman, M., Croiset, G., & Beishuizen, J. (2017b). Developing a teacher identity in the university context: A systematic review of the literature. *Higher Education Research and Development, 36*(2), 325-342. https://doi.org/10.1080/07294360.2016.1208154

Villagran, M. M., & Lucke, J. F. (2005). Translating communication measures for use in non-English-speaking populations. *Communication Research Reports, 22*(3), 247-251. https://doi.org/10.1080/00036810500230743

Watts, J., Econmou, K., & McGoldrick, B. (2015). *US postsecondary faculty in 2015*. Retrieved from: http://postsecondary.gatesfoundation.org/wp-content/uploads/2015/02/US-Postsecondary-Faculty-in-2015.pdf

Weimer, M. (2016). *Essential teaching principles: A resource collection for adjunct faculty*. Magna Publications.

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Needs, motivations, and identification with teaching: a comparative study of temporary part-time and tenure-track health science faculty in Iceland

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Abstract

Background: About 70% of teachers who instruct healthcare students are considered sessional (adjunct/temporary part-time) faculty and receive limited instruction in pedagogy. Sessional faculty may feel isolated and struggle with their teacher identity, and are often assumed to vary in their commitment, motivation, and ability to teach. However, research on teaching identity, motivations, and needs of sessional faculty is lacking. The aim of this study was to compare similarities and differences between sessional and tenure-track faculty across a health science school to guide faculty development for sessional faculty.

Methods: We developed an online needs assessment survey, based on informal interviews and literature reviews. Seventy-eight tenure-track faculty and 160 sessional faculty completed the survey (37, 25% response rate, respectively). We used validated scales to assess intrinsic motivation, identified regulated motivation, and identification with teaching, as well as developed scales (perceived connectedness, motivated by appreciation to try new teaching method) and single items. All scales demonstrated good internal consistency. We compared sessional and tenure-track faculty using t-tests/chi-square values.

Results: We found similarities between sessional and tenure-track faculty in intrinsic motivation, identified regulated motivation, and identification with teaching. However, sessional faculty perceived less department connectedness and were more motivated to improve instruction if shown appreciation for trying new teaching methods. Sessional faculty agreed more that they desired pedagogy instruction before starting to teach and that teachers should invest energy in improving their teaching. Admitting to less participation in activities to enhance teaching in the last year, sessional faculty were more interested in digital formats of faculty development.

Conclusion: Our comparison suggested that sessional faculty value being a teacher as part of their self, similar to tenured faculty, but desired more appreciation for efforts to improve and perceived less connectedness to their university department than tenured faculty. They also preferred digital formats for pedagogy to improve accessibility, prior to and throughout their teaching career to support their development as teachers. Using this information as a guide, we provide suggestions for faculty development for sessional faculty. Supporting sessional faculty in the health sciences should improve the quality of teaching and positively affect student learning.

Keywords: Sessional faculty, Motivation, Needs, Faculty development, Identity, Connectedness, Pedagogy, Non-tenured, Adjunct, Part-time temporary, Self-determination theory

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Background

Faculty development (FD) has been shown to positively affect student learning [1]. Needs assessments are often used to take into consideration the needs of educators being served by FD. Traditionally, educators are asked about their perceived need for skills [2–5]. However, authors of the Best Evidence Medical Education (BEME) Guide on faculty development initiatives in the health sciences state that "the majority of (FD) interventions emphasized skill acquisition, often ignoring faculty members' motivations for teaching, values, and professional identities" [6]. As FD interventions often challenge teachers to reflect on their teaching philosophy and consider modifying their current teaching practices, FD interventions need to build on the positive values and motivations that engage teachers, while providing the knowledge and skill that meets their perceived need [2, 7].

As students enter health sciences school, we assume that most are focused on becoming a good healthcare professional and not on becoming a good teacher. However, healthcare professionals may struggle with their identity as a teacher [8] as they find themselves teaching students as temporary part-time or, as they are referred to in Iceland and other parts of the world, sessional faculty (SF). Referred to by many other names across cultures and disciplines (e.g., adjunct, part-time, contingent, occasional, casual, non-tenured, community-based preceptors), SF are often appointed as non-tenure track and have a contractual, part-time relationship with their institution [9]. For this study, we defined SF as healthcare professionals who taught health science students directly in the classroom and/or clinic and were considered temporary, whereas tenure-track faculty (TF) were defined as all faculty hired for a permanent position.

SF are being called the "new faculty majority" [10]. They are gaining attention in research due to their prominence, with a U.S. study reporting 70% of all faculty are not hired on the tenure track [11]. Percentages of non-permanent faculty are difficult to report across Europe due to the heterogeneity of systems across and within countries [12], but the European University Institute reports that about 50% of faculty positions are fixed-term contracts in the United Kingdom [13]. Some researchers question whether the needs of SF are being met [9, 14, 15], especially in the areas of preparation for teaching and ongoing training. SF may vary in terms of their backgrounds, teaching abilities, and motivational levels for teaching students, which has led to questions about SF quality of instruction, loyalty, and the impact on student learning [16]. The Association of American Medical colleges reports that SF often feel that their status causes both the institution and their colleagues to doubt their commitment and work ethic [17], which may contribute to feelings of not being understood or appreciated. Weimer [18] states that SF may differ from TF with respect to certain needs, such as: 1) pedagogical – based on their limited exposure to teaching theories; 2) a sense of connectedness to the university, departmental colleagues/other SF; and 3) time for FD opportunities. Forbes et al. [19] writes that it is imperative that SF needs are assessed and addressed as a necessary first step to promote job satisfaction and quality in teaching among SF in nursing.

However, considering US research in the health sciences, SF are not well-represented in needs assessments and FD. In a report by the Alliance for Academic Internal Medicine, the authors suggest that little information is available regarding the experiences, satisfaction and engagement of SF [20]. Drowos et al. [21] reports that most FD for SF is based on informal conversations and teaching evaluations, rather than needs assessments. The conclusion then is that, without needs assessments, little is known about the unique professional needs, motivations to teach, and identity of SF [22], making it difficult to develop effective support for this 'faculty majority'.

Although a few studies examine SF motivations to teach within the health sciences [23–26], most are qualitative, study a specific group within SF, and do not compare the results to TF. Therefore, we set out to answer the question: Do SF differ from TF with respect to their identification with teaching, motivation, connectedness with their department and faculty development needs across a health sciences school? We propose that a comparison of these two groups could suggest ways in which FD for SF should be different from FD for TF. Therefore, the aim of this study was to provide results that can guide FD for SF, by sending out a survey to both the TF and the SF in a health science school to compare measures of motivation, attitudes, values, and needs, highlighting similarities and differences.

Methods

Site, distribution, and participants

We performed this study at the Health Sciences School at the University of Iceland (HSS). HSS consists of six faculties: nursing, pharmacy, food science and nutrition, psychology, odontology, and medicine (which includes physical therapy, biomedical sciences and radiology). HSS has 212 TF and reportedly over 1000 SF [27], meaning SF comprise over 82% of teachers. To the best of our knowledge, no formal needs assessment of HSS teachers, whether SF or TF, has ever been conducted.

We obtained TF email addresses through online resources for HSS as well as distributions across disciplines and gender. No centralized list of health science SF email addresses was available from the university, so a list was generated through various resources. We

coded SF and TF email addresses for incentive awards ($20 gift cards) and only the primary researcher had access to the codes to preserve anonymity. For both the pilot and the main study, the primary researcher sent the invitation to participate from the HSS faculty developer (second author of this paper) email, explaining its purpose as an anonymous needs assessment and encouraging participation, while including the code and a link to the online survey. A few departments agreed to send out general encouragements to their faculty to participate. Once the participant entered the online survey, the purpose of the anonymous survey was again explained, the participant was given the primary authors' contact information for any questions, and it was explained that the results would be utilized for publications with all self-identifying information removed. The primary author sent reminders after two weeks to teachers who had not participated. Participation in the survey served as consent for participation in the study.

Survey development

Following the AMEE Guide for developing questionnaires [28], we performed a literature review of theories related to faculty needs assessment and a review of recent surveys [2, 3, 5, 19, 29, 30], which was synthesized with teacher interviews into a survey. We included previously validated scales that assessed the constructs described here. *Identification with teaching* (ID) is a 4-item scale, adapted from engineering, to evaluate identification with a profession [31]. ID is a measure of the extent to which a teacher values their role and performance in teaching as an important part of self [32]. *Intrinsic motivation* (IM) is a 4-item scale used as part of the Physician Motivation Teaching Questionnaire (PMTQ) [33]. IM is a construct within self-determination theory (SDT) and involves the highest form of self-regulation [34], where actions are done out of pure interest or joy. *Identified regulated motivation* (IR) is a 3-item scale, also part of the PMTQ [33]. IR, also part of SDT, is considered close to IN, with actions based on personal values and beliefs.

We also developed two scales based on the literature review: [1] a 3-item scale of teachers' perceived connectedness with their department/colleagues (CO) and [2] a 4-item scale of motivations to try a new teaching method by forms of appreciation (AP) (acknowledgment, financial compensation, supervisor feedback, improved student evaluations). We also included items that measured perceived need for more pedagogy before starting to teach, attitudes towards teachers' responsibilities to improve teaching, participation in faculty development activities in the last year, and FD format preferences. We chose to have our participants rate most items on a 6-point Likert scale (1- "strongly disagree", 2- "disagree", 3- "somewhat disagree", 4- "somewhat agree", 5- "agree", and 6- "strongly agree") as we were interested in the strength of their agreement/disagreement. We did give an option of "choose not to answer". For preferred FD formats, we utilized a 5-point Likert scale (1– "never"; 2– "very unlikely"; 3– "unlikely"; 4– "likely"; 5– "very likely"). A copy of the entire survey in English is available upon request from the primary author.

We utilized suggested guidelines [35] for the adaptation of the survey to Icelandic, which included translation by a bi-lingual expert into Icelandic, synthesis, back-translation by a second bi-lingual expert into English, review by an expert committee, and pilot-testing with review. Thirty-two TF and 48 SF from HSS participated in the online pilot testing conducted a month prior to general administration of the survey. Icelandic translation of validated scales showed similar internal consistency to previously reported measures with all scales showing good internal consistency with Cronbach's alpha (α) [36], as listed in Table 1 along with the complete list of items for ID, IR, IM, CO, and AP scales.

Ethical considerations

We submitted the details of the project to The National BioEthics Committee. In response, they indicated there was no need for their approval given the nature of the data being anonymous opinions of faculty. We announced the project to the Icelandic National Data Protection Authority who publicized the project as per Icelandic regulations. This research was part of the primary author's doctoral study that was approved by the University of Iceland School of Health Sciences. The two primary researchers who sent the invitation emails had no position of authority over the participants and participation in the survey was voluntary and anonymous.

Data analysis

Pilot testing identified no single item measures that were problematic due to the translation process; therefore, we added the pilot data to the main data collected for full analysis. For all statistical analyses of final data, we utilized SAS 9.4 (SAS Institute Inc., Cary, North Carolina, USA). We calculated a total scale score by summing the scale items, and then divided the total by the number of items to determine the average scale score. Independent-sample t-tests were used to identify similarities and significant differences between SF and TF for the five scales.

To eliminate cells with values less than five in the chi-square test, we combined the "strongly disagree", "disagree", "somewhat disagree", and "somewhat agree" statements into one category. For preferred FD format, we combined "likely" and "very likely" scores into one category and "never", "very unlikely", and "unlikely" scores into another category. We then calculated chi-

Table 1 Scales - internal reliability and items

α, α from literature	Scale name	Scale items
.80, .84 [31]	Identification with teaching (ID)	Success in teaching is very valuable to me
		It matters to me how well I do with my teaching
		Being good at teaching is an important part of who I am
		Doing well as a teacher is very important to me
.86, .82 [33]	Intrinsic motivation (IM)	I enjoy teaching most of the time
		I look forward to my next teaching most of the time
		During teaching, I am completely in my element
		Teaching enriches my job
.80, .65 [33]	Identified regulated motivation (IR) "I teach because…"	I find the contents of my lesson important
		I am convinced that it is a healthcare professional's duty to pass on his/her knowledge
		it's important for me to make my contribution to students becoming good healthcare professionals in the future
0.78	Perceived connectedness with department (CO)	Department members frequently share teaching methods they have found successful
		I feel connected to my department colleagues
		I have specific department colleagues whom I would look to for help if I wanted to improve my teaching methods
0.76	Motivated by appreciation (AP) "I would be motivated to try a new teaching method…"	if I was financially rewarded for attending course and workshops on enhancing my teaching
		if I received feedback from other teachers or my supervisor on my teaching
		if it improved my ratings on student evaluations
		if I was shown appreciation for enhancing my teaching methods

square values to identify differences between SF and TF for single item measures. We performed a two-way ANOVA on all significant scales and single item measures (other than preferred FD format) with the teacher type (SF or TF) and levels of [1] gender (male or female), [2] age group (< 40, 40–52, or 53+), and [3] discipline (nursing, medicine, or physical therapy) to test for interactions between them.

Results

Between the pilot testing and general administration of the survey, we emailed 863 invitations to participate to TF ($n = 212$) and SF ($n = 651$). Although 298 faculty members entered the survey, we collected demographic information (i.e., gender, age range, faculty discipline within HSS, SF or TF, and number of classroom teaching hours for SF) at the conclusion of the survey and we discarded data for the comparison if demographic information was not complete. Seventy-eight TF and 160 SF (or 238 faculty in total) completed the survey and demographic information for a response rate of 37 and 25%, respectively. SF who teach in the classroom averaged 40 h a year of teaching (range 2–813 h, median = 16 h), or 1.3 h/week. A comparison of the demographic information of our TF and SF is presented in Table 2. We saw in our comparison of the TF survey respondents to the TF reported by the university that the survey respondents were an approximate representation of the disciplines at HSS but had a higher percentage of females. We could not perform the same comparison for SF as the information on SF was limited to their email addresses. In Table 2, we also compared the SF survey

Table 2 Participant Characteristics

	TF		SF	
	R (%F)	S (%F)	R	S (%F)
# of participants	212 (45)	78 (62)	651	160 (71)
% Med	56 (36)	54 (42)	*	66 (64)
% RN	15 (87)	19 (87)	*	22 (94)
% N&FS	6 (46)	8 (67)	*	1 (100)
% Odont	9 (25)	6 (40)	*	2 (50)
% Pharm	6 (57)	5 (25)	*	4 (66)
% Psych	8 (50)	8 (67)	*	5 (40)
% > 52 years old	*	54	*	38

TF = tenured faculty; SF = sessional faculty;
R - reported by university; S - survey respondents; %F – percent female;
Med - faculty of medicine (includes physical therapy, biomedical sciences, radiology); RN - faculty of nursing; N&FS – faculty of nutrition and food science; Odont – odontology; Pharm – pharmacy; Psych - psychology;
*information not known

respondents to TF survey respondents, indicating that the SF group had a higher percentage of females and medicine faculty (includes physical therapy, biomedical sciences, and radiology), and was younger. Due to these differences, we performed a two-way analysis of variance, which indicated that interaction effects of teacher type with gender, age group and discipline were non-significant for scales and items (discussed below).

A comparison between SF and TF across our motivation (IM, IR), identity (ID), connectedness (CO), and appreciation (AP) scales, using independent t-tests is presented in Table 3. We saw similarities and differences between SF and TF. The p values indicated that there were no significant differences between TF and SF with respect to intrinsic motivation (IM), identified regulated motivation (IR), and identification with teaching (ID), but inter-individual variation did exist as seen in measures of standard deviation (SD). In contrast, as evidenced by the p values, there were significant differences with SF demonstrating significantly less connectedness (CO) and more motivation to try a new teaching method if shown appreciation (AP) than TF. Our developed scales (CO, OP) had higher inter-individual variation (SD), lower average scores (M), and more participants who chose not to answer, as indicated by the degrees of freedom (DF), when compared to our validated scales (ID, IM, IR).

Table analysis with chi-square testing is provided in Table 4 for single items that evaluated attitudes towards and participation in activities to improve teaching. Again, we saw some differences between SF and TF as indicated by significant p values. SF significantly agreed more than TF that they would have liked more pedagogy before starting to teach, with 45% agreeing strongly with this statement. The p values also indicated that SF agreed more that it is part of a teacher's responsibility to invest time and energy to improve teaching. With the largest p value difference, SF admitted more to not participating in activities in the last year to enhance teaching (44%) compared to 13% of TF.

Table analysis and chi-square testing for significant preferred FD formats is presented in Table 5. SF preferred distance learning, hybrid learning, videoconferencing, and social networks when compared to TF, with distance learning being the most popular (67%). The largest differences ($p < .001$) were seen with the distance learning and social networks formats. Other formats that were asked about on the survey (e.g., workshops, consultations, in-person discussion groups) were not significant between groups.

Table 3 Scale Comparisons Between Tenured and Sessional Faculty

	TF		SF				
Scale	M	SD	M	SD	DF	t	p
IM	5.1	0.7	5.0	0.8	234	1.43	0.23
IR	5.5	0.6	5.5	0.5	236	0.1	0.75
ID	5.5	0.5	5.5	0.6	232	0.56	0.45
CO	3.8	1.2	3.2	1.2	201	3.36	< .001
AP	4.2	1.1	4.6	0.9	209	6.07	0.01

M - average score; SD - standard deviation; DF - degrees of freedom;
TF - tenured faculty; SF – sessional faculty;
IM - intrinsic motivation; IR - identified regulated motivation; ID - identification with teaching; CO - perceived connectedness; AP - motivated to improve by appreciation
Response options included: 1-strongly disagree; 2-disagree; 3-somewhat disagree; 4-somewhat agree; 5-agree; 6-strongly agree

Discussion

To the best of our knowledge, this is the first quantitative survey across an entire school of health sciences comparing the motivations, attitudes, values, and needs of both SF and TF. Our response rate is modest, possibly due to the survey length, but comparable to other needs assessments [2, 3, 29]. It is difficult to determine how representative our results are for the actual SF population since the university lacks information on this group, a problem also experienced in other studies [37, 38]. However, our results have value in illuminating the needs of an under-represented group of teachers who play an important role in health science education. We believe the results contribute to a better understanding of the similar and different motivations and needs of both TF and SF at a health sciences school and can help universities support all health science faculty.

Similarities between SF and TF

Intrinsic/identified regulated motivation and identification with teaching

The results from this study suggest that there is no difference in intrinsic motivation between SF and TF (Table 3). Both TF and SF agree that teaching is enjoyable and personally fulfilling, which is encouraging to see. This is similar to a report of SF in nursing where participants describe their work as 'positive' and 'rewarding' [39] and in qualitative studies with SF hospital physicians who describe 'the joy of teaching itself' [24, 25]. Results from Steinert and Macdonald [23] "suggest that we should acknowledge our teachers, nurture their inherent desire to teach, and make the joy of teaching more visible." According to our results, the environment provided at HSS seems to be supporting both SF and TF interest and enjoyment of teaching fairly well.

The results also suggest that there is no difference in identified regulated motivation between SF and TF (Table 3). IR includes the values and beliefs integrated into a teacher that become his/her reasons to teach. Altruistic statements (e.g., "teaching is a healthcare professional's duty") are strong in the health sciences and are

Table 4 Item Comparisons

			DSA	A	SA	DF	SS	Chi-square	p
I would have liked more pedagogy before I started teaching	TF	Count	31	27	20	2	235	7.92	0.019
		% within teacher type	40%	35%	25%				
	SF	Count	46	41	70				
		% within teacher type	29%	26%	45%				
It is part of a teacher's responsibility to invest time and energy to improve teaching	TF	Count	36	22	17	2	222	7.31	0.026
		% within teacher type	48%	29%	23%				
	SF	Count	48	70	29				
		% within teacher type	33%	47%	20%				
			3+	1 or 2	0				
The number of times I participated in activities that developed my teaching methods in last year.	TF	Count	33	35	10	2	238	33.96	<.0001
		% within teacher type	42%	45%	13%				
	SF	Count	22	67	71				
		% within teacher type	14%	42%	44%				

DSA- strongly disagree, disagree, somewhat disagree, somewhat agree; A - agree; SA - strongly agree;
TF - tenured faculty; SF - sessional faculty
DF - degrees of freedom; SS - sample size; p - significance level

mentioned often in the literature among all types of faculty [23–26]. As these values are similar and just as strong in SF, our results contradict suggestions that SF are less motivated and committed to passing on their knowledge to students [17] and suggest that SF have strong professional values regarding teaching.

Deci and Ryan (34, pg. 182), in describing SDT, state that autonomous motivation is "both intrinsic motivation and the types of extrinsic motivation in which people have identified with an activity's value and ideally will have integrated it into their sense of self". Therefore, the combination of similar scores on both IM and IR suggest that SF and TF have similar autonomous motivation for teaching. Supporting autonomous motivation maximizes functioning and well-being in both students and faculty [40], so we suggest it would be

Table 5 How likely are you to participate in FD with following formats?

			UL	LL	DF	SS	Chi-square	p
Distance learning	TF	Count	50	28	1	238	20.5	<.001
		% within teacher type	64%	36%				
	SF	Count	53	107				
		% within teacher type	33%	67%				
Hybrid learning	TF	Count	41	37	1	238	4.5	0.035
		% within teacher type	53%	47%				
	SF	Count	61	99				
		% within teacher type	38%	62%				
Videoconference	TF	Count	51	27	1	238	5.4	0.02
		% within teacher type	65%	35%				
	SF	Count	79	81				
		% within teacher type	49%	51%				
Social networks	TF	Count	55	23	1	238	14.4	<.001
		% within teacher type	71%	29%				
	SF	Count	71	89				
		% within teacher type	44%	56%				

FD - Faculty Development; TF - tenured faculty; SF - sessional faculty
UL - never, very unlikely, and unlikely; LL - likely, very likely
DF - degrees of freedom; SS - sample size; p - significance

advantageous to encourage and celebrate IR and IM in all teachers.

The results also suggest that there is no difference in identification with teaching between TF and SF (Table 3). ID is a representation of how much a person values their role/performance in teaching, as a part of their self, as part of their identity [41]. We consider this a somewhat surprising result as a common assumption is that SF do not value being a teacher as much as TF. This is assumed because teaching is most often a secondary profession to their work as a healthcare professional, as evidenced by our sample which has an average classroom teaching of 1.3 h per week. The fact that TF and SF report similar high values for ID seems to contradict assumptions that SF identify less with being a teacher and are less motivated and committed to teaching [16, 17] and indicate that they identify themselves as teachers similar to TF.

Differences between SF and TF

Less connectedness to department/colleagues

Our results confirm the conclusions of many qualitative studies that found that SF perceive a lack of connectedness to their university departments/colleagues [9, 16, 17, 22, 39, 42] (Table 3). In SDT, connectedness is similar to relatedness and is considered a fundamental need for optimal functioning and growth [43]. Common descriptions of life as a SF in the literature include words like 'isolated', 'not belonging', 'limited contact with faculty', 'lack of institutional engagement', 'excluded', 'invisible' and 'outsiders' [19, 22]. Buch et al. [9] report that the overwhelming challenge mentioned by SF is 'the sense of isolation and disconnectedness from their departments and colleagues'. SF are also excluded from course development and curriculum renewal, further removing them from essential planning functions at the university [39]. Not only do SF experience less connectedness but a longitudinal study suggests these feelings ultimately increase over time and affect faculty identity negatively [44]. Research studies are starting to appear in the literature on programs designed to address SF needs for more connectedness [9, 16, 42] but there is still a lack of in-depth evaluations regarding program outcomes [14]. However, increasing a sense of connectedness for SF is hypothesized to improve retention of effective SF [19] and is associated with improved loyalty and satisfaction [45] and less reports of isolation by SF [9], which may improve teaching effectiveness and student outcomes.

Motivated by appreciation

Our study results also suggest that SF would be more motivated than TF to reflect on their teaching or try a new teaching method if they are shown forms of appreciation (Table 3). These forms of appreciation include general recognition, feedback from supervisors, financial compensation, and improved student evaluations. Although all are considered extrinsic forms of motivation by SDT, general recognition, feedback from supervisors, and improved student evaluations can be considered either identified regulation or introjected regulation, depending on whether the teacher is motivated by internalized values (identified regulation) or to avoid guilt or enhance pride (introjected regulation) [43]. They are, therefore, considered more supportive of autonomy than financial compensation, considered to be a form of external regulation by SDT [43].

All health educators alike cite a need for recognition of high-quality teaching [4, 46] and a sense of appreciation from others has been recognized as important to identity development as a health science educator [8]. However, a common complaint of SF is not feeling appreciated for what they contribute [4, 42, 47]. Hoyt [45] reports low ratings of perceived recognition among SF, even though it is identified as a primary motivator for loyalty and satisfaction. Similarly, SF complain of a lack of assessment of and feedback on their teaching, which can be perceived as a lack of caring by the department/institution [22]. However, van den Berg et al. [29] reports that 'feedback on my teaching performance' is the strongest predictor of engagement in teaching faculty at a university medical center. Therefore, it appears that feedback regarding teaching and appreciation of good teaching will benefit SF. Better student evaluations will presumably improve any teacher's sense of appreciation, although some argue that overemphasis on student evaluations, as is seen in assessments of SF [22], can inhibit diversification of methods by teachers due to fear of receiving lower student evaluation grades and wasting students' time [48]. Results are not as clear about the need for financial compensation but more recent research shows that the loyalty of SF is partially predicted by honorariums [9, 45].

More pedagogical training

Our results indicate that SF desired more training in pedagogy before starting to teach, with over 71% of SF agreeing/strongly agreeing with this statement (Table 4). This supports results from qualitative studies that suggest that SF in the health sciences receive little, if any, training in teaching methods, and desire more training [3, 9, 49, 50]. An important question persists in the health science professions: How can we expect our teachers to be effective and competent teachers if we rarely train them in teaching? A sense of competence has also been identified as essential for health science educator identity [8] and optimal functioning and growth according to SDT [43], and a lack of confidence

in teaching ability has been identified as a barrier to teaching medical students [49].

Responsibility to improve but not attending FD

More SF than TF agree/strongly agree that it is part of their responsibility as a teacher to invest time and energy to improve their teaching, while 56% of SF state that they attended at least one activity to enhance their teaching in the last year, as compared to 87% of TF (Table 4). Little literature on SF attendance at FD activities exists. Buch et al. [9] reports 67% of SF participated in at least one activity in FD in the last year and Hoyt [45] reports 69% of SF agreeing/strongly agreeing that they had enhanced their teaching in the last year. Both studies report somewhat higher percentages than the current study report of 56%. Part of SF support could include FD that is available in various formats favored by SF (e.g., distance and hybrid learning), as supported by results in Table 5. In support of all these conclusions, a qualitative analysis by Buch et al. [9] identifies the following encouragers for SF to attend FD: 1) convenient time; 2) digital/online formats unless there is a social aspect; 3) increasing SF awareness of FD workshops and offerings; 4) offering workshops that are relevant and have proven benefits to students; and 5) incentives (appreciation, financial compensation) to participate.

Implications

We suggest that useful information was obtained about SF and TF through the current survey. Our results support the fact that SF have similar motivations and values to TF and confirms that SF put their value of self in the role and performance of being a good teacher, even if it may be a secondary occupation. We suggest that the conclusion from these results should be that SF should not be "marginalized" or neglected by their institution/department because of the presumption that they are not as motivated or committed to being a good teacher.

The results also reinforce the idea that SF have a need for connectedness that should be addressed by FD, departments, and the university. There are many suggestions in the literature of what this could entail. A few universities have developed unique SF orientations [9, 14, 50] and required courses that are compensated [21], so that new SF have a basic pedagogical background before they start teaching. Another important idea is a centralized office for SF within the department or university [15, 17] with updated contact information. This may improve awareness of FD among SF and the office can develop resources specific to SF, such as orientations, webpages, evidence-based pedagogical strategies, classroom observations, and mentoring [9, 45, 50]. Within the department, SF can be invited to meetings, be a voice in department and curricular decisions, and meet with staff, department chairs, and other SF for both professional and social reasons [19, 39]. Other ideas that have been found to be successful are faculty learning communities and book clubs for SF [9, 16, 51]. Focus groups and interviews with the SF group of interest can identify and guide solutions that work best for that population.

One way to address the inconsistency between SF desire/value of FD and actual participation is to make FD offerings convenient to SF (multiple times including after-work hours and/or through various innovative digital formats) [9, 21]. Recognition of good teaching and the efforts made to become a better teacher are essential, and pedagogical training for SF that is reimbursed or somehow acknowledged should become the standard [21], and be seen as an investment in teachers and students. FD has been shown to improve teacher identity by improving confidence in teaching ability, increasing relatedness to other faculty, and increasing credibility and legitimacy as educators [8], as well as positively affecting student learning [1]. Therefore, FD should be encouraged and accessible for all health science faculty.

Limitations and suggestions for future research

We acknowledge that there are limitations to the study. First, the survey was administered to faculty in only one health science school. Therefore, some of the results obtained could reflect specific issues within this health science school and not be generalizable to all health science schools. However, results from the literature are consistent with the results shown from the study, indicating that the faculty at HSS in Iceland are similar to faculty at other schools with respect to at least some of their beliefs. Second, we cannot say with certainty that the results of this sample are representative of the whole population of teachers at HSS given the response rate and the fact that there was a high representation of female faculty in our respondent population, a common problem in survey research. In future research, the response rate might be better if a shorter measure or a specific tool could be created from the current study survey, as our respondents' completion rate indicated there was some survey fatigue (298 entered the survey but 238 completed). This could then be repeated in other countries to evaluate for a more global response. Another demographic issue was the lack of a centralized list of SF, as we were only able to obtain valid email addresses for 651 of the estimated 1000 SF [27], despite multiple efforts to obtain them. This lack of effort by universities to collect basic contact information about SF is also reported in the literature [37, 38] and should be addressed by administrations and departments. Despite these uncertainties regarding demographics, we found

that the make-up of our SF and TF groups with respect to gender, age, and discipline did not affect the significant results in our study. Third, this study did not focus on one of the main discrepancies between SF and TF – the issue of pay and benefits. We did this purposefully in an effort to explore other motivational effects but acknowledge the impact that this discrepancy has on motivation.

More research is needed on the support needed and challenges faced by SF. FD will be more effective if the population it serves is better known so emphasis should be placed on needs assessments, utilizing focus groups to explore solutions. Further research studies should evaluate FD programs that highlight, focus on, and celebrate motivations to teach for their impact on teachers and, ultimately, on student learning.

Conclusion

SF have become the 'faculty majority' and we suggest that their needs, motivations and values need to be considered in FD. The act of assessing the needs of this population, prominent in numbers but not well-represented in research, is an important first step in addressing those needs [19]. Despite some assumptions about SF lacking commitment and identity as teachers, identification of self with role/performance in teaching, altruistic professional values, and enjoyment of teaching were found to be similar between SF and TF, suggesting no difference in their motivations to be good teachers and contribute to student learning. Effective FD should not only teach skills but also reinforce and celebrate these motivations to encourage all faculty to continue to develop as educators. We suggest times for renewal and reflection on personal and professional growth [23] as well as reflection on values, reasons to teach, and the enjoyment of being a good teacher, both as individuals and as a community.

The differences between SF and TF highlight some of the issues that need to be considered when designing FD for SF. FD for SF needs to teach skills relevant to SF while promoting both motivations to teach and connectedness with the department/university. Departments need to be creative in their ways to include SF and look for ways to show appreciation for good teaching and efforts to improve. Finally, FD for SF needs to consider timing and online/hybrid formats for their offerings to accommodate SF work schedules. We suggest that assessing and addressing the motivations and needs of all faculty that have contact with students has a beneficial impact on the learning environment and the quality of education in the health sciences.

Abbreviations

AP: Motivated to try a new teaching method by forms of appreciation; CO: Perceived connectedness with their department/colleagues; FD: Faculty development; HSS: School of Health Sciences; ID: Identification with teaching; IM: Intrinsic motivation; IR: Identified regulated motivation; PMTQ: Physician Motivation Teaching Questionnaire; SDT: Self-determination theory; SF: Sessional/adjunct/contingent faculty; TF: Tenured faculty

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Authors' contributions

AGS, ABS, and BJ contributed to development of the survey and the analysis and interpretation of the results. TS provided statistical assistance. AGS was the major contributor in writing the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

We sought ethical approval for the project through The National BioEthics Committee but they indicated there was no need their approval given the nature of the data. We announced the project to the Icelandic National Data Protection Authority who publicized it per Icelandic regulations. This research was part of the primary author's doctoral study that was approved by the University of Iceland School of Health Sciences. The two primary researchers who sent the invitation emails had no position of authority over the participants and participation in the survey was voluntary and anonymous.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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References

1. Condon W, Iverson ER, Manduca CA, Rutz C, Willett G, Huber MT, et al. Faculty development and student learning: assessing the connections. Bloomington, Indiana: Indiana University Press; 2016. p. 1–156.
2. Behar-Horenstein L, Garvan C, Catalanotto F, Hudson-Vassell C. The role of needs assessment for faculty development initiatives. J Fac Dev. 2014;28(2):75–86.
3. Bigbee JL, Rainwater J, Butani L. Use of a needs assessment in the development of an interprofessional faculty development program. Nurs Educ. 2016;41(6):324–7.
4. Huwendiek S, Mennin S, Dern P, Ben-David MF, Van Der Vleuten C, Tonshoff B, et al. Expertise, needs and challenges of medical educators: results of an international web survey. Med Teach. 2010;32(11):912–8.
5. Schönwetter DJ, Hamilton H, Sawatzky JV. Exploring professional development needs of educators in the health sciences professions. J Dent Educ. 2015;79(2):113–23.
6. Steinert Y, Mann K, Anderson B, Barnett BM, Centeno A, Naismith L, et al. A systematic review of faculty development initiatives designed to enhance teaching effectiveness: a 10-year update: BEME guide no. 40. Med Teach. 2016;38(8):769–786.
7. Sorinola O, Thistlethwaite J, Davies D, Peile E. Realist evaluation of faculty development for medical educators: what works for whom and why in the long-term. Med Teach. 2017;39(4):422–9.
8. van Lankveld T, Schoonenboom J, Volman M, Croiset G, Beishuizen J. Developing a teacher identity in the university context: a systematic review of the literature. High Educ Res Dev. 2017;36(2):325–42.
9. Buch K, McCullough H, Tamberelli L. Understanding and responding to the unique needs and challenges facing adjunct faculty: a longitudinal study. Int J Educ Res. 2017;16(10):27–40.
10. Fuller R, Brown MK, Smith K, editors. Adjunct faculty voices: cultivating professional development and Community at the Front Lines of higher education. Sterling, VA: Stylus Publishing; 2017.
11. Kezar A, Maxey D. Troubling ethical lapses: The treatment of contingent faculty. Change. 2014;July/August:34–7.
12. League of European Research Universities. Tenure and tenure-track at LERU universities 2014. Available from: https://www.leru.org/files/Tenure-and-Tenure-Track-at-LERU-Universities-Full-paper.pdf.
13. United Kingdom, Academic Career Structure: European University Institute; 2018. Available from: https://www.eui.eu/ProgrammesAndFellowships/AcademicCareersObservatory/AcademicCareersbyCountry/UnitedKingdom.
14. Knott G, Crane L, Heslop I, Glass BD. Training and support of sessional staff to improve quality of teaching and learning at universities. Am J Pharm Educ. 2015;79(5):72.
15. Pollart SM, Dandar V, Brubaker L, Chaudron L, Morrison LA, Fox S, et al. Characteristics, satisfaction, and engagement of part-time faculty at U.S. medical schools. Acad Med. 2015;90(3):355–64.
16. Bond N. Developing a faculty learning community for non-tenure track professors. Int J Higher Ed. 2015;4(4):1–12.
17. Bunton SA, Corrice AM. An exploration of part-time U.S. medical school faculty: A thematic overview. Washington, D.C.: Association of Amercian Medical Colleges; 2011. Contract No.: 9.
18. Weimer M. Essential teaching principles: a resource collection for adjunct faculty. Madison, WI: Magna Publications; 2016.
19. Forbes MO, Hickey MT, White J. Adjunct faculty development: reported needs and innovative solutions. J Prof Nurs. 2010;26(2):116–24.
20. Linzer M, Warde C, Alexander RW, Demarco DM, Haupt A, Hicks L, et al. Part-time careers in academic internal medicine: a report from the association of specialty professors part-time careers task force on behalf of the Alliance for Academic Internal Medicine. Acad Med. 2009;84(10):1395–400.
21. Drowos J, Baker S, Harrison SL, Minor S, Chessman AW, Baker D. Faculty development for medical school community-based faculty: a Council of Academic Family Medicine Educational Research Alliance study exploring institutional requirements and challenges. Acad Med. 2017;92(8):1175–80.
22. Jolley MR, Cross E, Bryant M. A critical challenge: the engagement and assessment of contingent, part-time adjunct faculty professors in United States community colleges. Community Coll J. 2014;38(2–3):218–30.
23. Steinert Y, Macdonald ME. Why physicians teach: giving back by paying it forward. Med Educ. 2015;49(8):773–82.
24. Dybowski C, Harendza S. "Teaching is like nightshifts..": a focus group study on teaching motivations of clinicians. Teach Learn Med 2014;26(4):393–400.
25. May M, Mand P, Biert zF, Hummers-Pradier E, Kruschinski C. A survey to assess family physicians' motivation to teach undergraduates in their practices. PLoS ONE. 2012;7(9):e45846.
26. Dahlstrom J, Dorai-Raj A, McGill D, Owen C, Tymms K, Watson DA. What motivates senior clinicians to teach medical students? BMC Med Educ 2005;5:27.
27. Dietz TE. Human resources information [email]. In: Snook AG, editor. Reykjavik, Iceland2017.
28. Artino AR, La Rochelle JS, Dezee KJ, Gehlbach H. Developing questionnaires for educational research: AMEE guide no. 87. Med Teach. 2014;36(6):463–474.
29. van den Berg BAM, Bakker AB, ten Cate TJ. Key factors in work engagement and job motivation of teaching faculty at a university medical centre. Perspect Med Educ. 2013;2:264–75.
30. Watts J, Econmou K, McGoldrick B. US postsecondary faculty in 2015. USA: Sponsored by the Bill and Melinda Gates Foundation; 2015.
31. Jones BD, Paretti MC, Hein SF, Knott TW. An analysis of motivation constructs with first-year engineering students: relationships among expectancies, values, achievement, and career plans. J Eng Educ. 2010;99(4):319–36.
32. Jones BD, Ruff C, Osborne JW. Fostering students' identification with mathematics and science. In: Renninger KA, Nieswandt M, Hidi S, editors. Interest in mathematics and science learning. Washington, DC: American Educational Research Association; 2015. p. 331–52.
33. Dybowski C, Harendza S. Validation of the Physician Teaching Motivation Questionnaire (PTMQ). BMC Med Educ. 2015;15(166).
34. Deci E, Ryan R. Self-determination theory: a macrotheory of human motivation, development, and health. Can Psychol. 2008;49:182–5.
35. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. Spine. 2000;25(24):3186–91.
36. Kline TJB. Pyschological testing. Thousand Oaks, CA: Sage; 2005.
37. Kezar A, Sam C. Understanding the new majority of non-tenure-track faculty in higher education: demographics, experience, and plans of action (ASHE higher education report). San Francisco, CA: Jolley-Bass; 2010.
38. Linder KE. Creating space for adjunct faculty: the multiple roles of centers for teaching and learning. J Centers Teaching Learning. 2012;4:33–59.
39. Dixon KA, Cotton A, Moroney R, Salamonson Y. The experience of sessional teachers in nursing: a qualitative study. Nurs Educ Today. 2015;35(11):1097–101.
40. Lyness JM, Lurie SJ, Ward DS, Mooney CJ, Lambert DR. Engaging students and faculty: implications of self-determination theory for teachers and leaders in academic medicine. BMC Med Educ. 2013;13:151.
41. Osborne JW, Jones BD. Identification with academics and motivation to achieve in school: how the structure of the self influences academic outcomes. Educ Psychol Rev. 2011;23(1):131–58.
42. Meixner C, Kruck SE, Madden LT. Inclusion of part-time faculty for the benefit of faculty and students. Coll Teach. 2010;58(4):141–7.
43. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. Am Psychol. 2000;55(1):68–78.
44. Thirolf KQ. How faculty identity discourses of community college part-time faculty change over time. Community Coll J. 2013;37(3):177–84.
45. Hoyt JE. Predicting the satisfaction and loyalty of adjunct faculty. J Cont High Educ. 2012;60(3):132–42.
46. Schiekirka-Schwake S, Anders S, von Steinbüchel N, Becker JC, Raupach T. Facilitators of high-quality teaching in medical school: findings from a nation-wide survey among clinical teachers. BMC Med Educ. 2017;17(1):178.
47. Starr S, Ferguson WJ, Haley HL, Quirk M. Community preceptors' views of their identities as teachers. Acad Med 2003;78(8):820–825.
48. Herckis L, Scheines R, Smith J. Failure to embrace new teaching techniques not just about fear of embarrassment: Times Higher Education; 2017. [cited 2017 July 12]. Available from: https://www.timeshighereducation.com/blog/failure-embrace-new-teaching-techniques-not-just-about-fear-embarrassment.
49. McCullough B, Marton GE, Ramnanan CJ. How can clinician-educator training programs be optimized to match clinician motivations and concerns? Adv Med Educ Pract 2015;6:45–54.
50. Santisteban L, Egues AL. Cultivating adjunct faculty: strategies beyond orientation. Nurs Forum. 2014;49(3):152–8.
51. Valle M, Fuchs T. Teaching and learning communities: empowering adjuncts and ensuring quality. J Educ Hum Dev. 2015;4(1):1–6.

Publisher's Note

Paper II

Factors predicting identity as educators and openness to improve: an exploratory study

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CONTEXT Researchers suggest that teachers' work environment affects their sense of connectedness and appreciation, which affects their educator identity. However, sessional (also known as adjunct, clinical, contingent and non-tenured) faculty members may struggle with their educator identity. The purpose of this exploratory study was to examine the extent to which perceived connectedness and received appreciation predicted identity as a medical (health care science) educator and openness to improve in tenure-track and sessional faculty members.

METHODS We utilised an 'identification with teaching' scale to measure medical educator identity. We developed scales to measure perceived connectedness to university department, openness to improve teaching, and appreciation as a motivation to try a new teaching method. We then hypothesised a path model between these constructs. We surveyed faculty members at a health sciences school and performed confirmatory factor analyses and structural equation modelling using data from a sample of 73 tenure-track and 146 sessional faculty members to explore support for the hypothesised model.

RESULTS Connectedness and appreciation predicted identity as a medical educator and openness to improve in different ways for sessional and tenure-track faculty members. For tenure-track faculty members, appreciation predicted medical educator identity and openness to improve, whereas a sense of connectedness trended towards predicting an openness to improve. For sessional faculty members, connectedness to their department predicted their identity as a medical educator, which acted as a mediator to predict an openness to improve.

DISCUSSION Our data supported the hypothesised model, but the sessional and tenure-track faculty models differed in strength and focus. We explore reasons for these differences based on the working environment of each teacher type. We suggest that the two models partially explain the transformation from 'a clinician who teaches' to a medical educator. Finally, we make suggestions for how identity as a medical educator and openness to improve may be encouraged in both types of teachers.

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INTRODUCTION

Teacher identity is increasingly seen as central to the teaching profession.[1] Authors of a systematic review identified several variables as being important to the development of teacher identity in the university context, including: a sense of appreciation, a sense of connectedness, a sense of competence, a sense of commitment, and imagining a future career trajectory.[2] Research has also shown that the transition from health care clinician identity to health care educator identity can be difficult as the expert clinician needs to become a novice teacher.[3] Researchers have described the progression of becoming a medical educator (i.e. an educator involved with teaching the healthcare sciences) in new tenure-track faculty members (TF) as being in phases that can take up to 1–3 years as clinicians identify the complexities of teaching and realise their clinical skills do not necessarily make them good teachers.[4–6] In response to this challenge, programmes to enhance teaching quality and skills have been found to increase identity as a medical educator in TF.[7–9] (For the purposes of our study, TF were defined as all faculty members hired for a permanent position.)

Educator identity has also been explored for sessional faculty members (SF), both in community-based physicians[10,11] and in occasional faculty developers.[12] Referred to by many names across cultures and disciplines (e.g. adjunct, part-time, contingent, occasional, casual, non-tenured, community-based preceptors), SF are usually appointed as non-tenure track and often have a contractual, part-time relationship with their institution.[13] (For the purposes of this study, SF were defined as health care professionals who taught health science students directly in the classroom or clinic and were considered non-tenured.) Because identity is seen as important to quality teaching, one goal of faculty development (FD) may be to consider factors that strengthen teacher identity in both TF and SF.

Educator identity also has been linked to reflective practice.[14] Reflection is suggested as a strategy for all teachers to better understand and improve their teaching practices,[15–17] as reflection integrates new learning into existing knowledge and skills.[18] Identity as a medical educator has been linked to improvements in teaching skills as well[19] and TF, seeing their new identity as a medical educator in an FD programme, reported being more comfortable with trying new techniques.[7] In addition, students in the health sciences prefer faculty members to use a variety of teaching methods to promote an optimal learning environment,[20] as seen in a medical student teaching survey.[21] Compared to using diverse teaching methods, using lectures primarily is associated with superficial learning, less critical thinking and less cognitive engagement.[22] Therefore, when educator identity is strong, both reflection and diverse teaching methods are practised, which improves teaching, student engagement and student outcomes.[23,24] A question for faculty developers and administrators wanting to help teachers improve their teaching then becomes: What factors can they enhance that may strengthen faculty members' identity as teachers and help teachers to become more open to reflection and diverse teaching methods?

As mentioned previously, authors of a systematic review determined that both a sense of appreciation and a sense of connectedness are important to the development of teacher identity but noted that both can be strengthened or constrained by the work environment of the teacher's department.[2] Various studies have evaluated appreciation and the benefits of communities of practice for TF, including faculty learning communities, as ways to engage faculty members, in the hope of improving teaching, although the literature is limited on outcomes.[9,25–28] A group of teachers who may struggle with feeling connected and appreciated are SF. Buch et al.[13] reported that the overwhelming challenge mentioned by SF was 'the sense of isolation and disconnectedness from their departments and colleagues' (p. 30). They may also view themselves as a 'clinician who teaches'[29] rather than a medical educator and have different needs with respect to FD.[30] Exploring how SF are different from TF may help faculty developers create interventions appropriate for each type of teacher. As TF and SF may experience and value connectedness and appreciation differently based on their work environments, we wanted to conduct an exploratory study to examine whether models that predict identity as a medical educator and an openness to improve were different for these two populations.

Hypothesis

We based our hypothesis on a systematic review linking a sense of connectedness and appreciation to educator identity.[2] Our primary research question was: To what extent do appreciation and

connectedness predict identity as a medical educator and an openness to improve one's teaching for TF and SF? Based on the literature, we made the following hypothesis: Appreciation for efforts to improve teaching and increased connectedness with a department will each predict higher identity as a medical educator, which will serve as a mediator in predicting a more open attitude to improve teaching by reflective practice and use of diverse teaching methods (see Fig. 1).

It is unknown whether this same model applies to both SF and TF. Therefore, we conducted an exploratory study to examine differences between these types of faculty members.

METHODS

Participants and procedure

This study took place at the Health Sciences School at the University of Iceland (HSS). The National BioEthics Committee indicated there was no need for their approval given the nature of the collected data. We announced the project to the Icelandic National Data Protection Authority, who publicised the project as per Icelandic regulations.

We obtained TF e-mail addresses and distributions across disciplines and gender through online resources for HSS. No centralised list of health science SF e-mail addresses was available from the university, so we generated one through various resources. For both the pilot and main study, invitations were e-mailed, with a link to the online survey. Two weeks after the initial e-mail invitation, reminder e-mails were sent to teachers who had not participated. Participation in the survey served as consent for participation in the study. A sample of 78 TF and 160 SF completed the survey (37% and 25% response rate, respectively), which is within the range of other published faculty development surveys.[31–34] In our TF sample, 62% were female and 54% were over 52 years old, whereas in our SF sample, 71% were female and 38% were over 52 years old. Additional demographic information, including comparisons to university-reported values regarding gender, age range and discipline within HSS, based on instructor type (i.e. TF or SF), is available as Data S1 or upon request from the primary author.

Survey development

Following the Association for Medical Education in Europe (AMEE) Guide for developing questionnaires, we performed a literature review of teacher identity theories and recent motivation and needs surveys, which were synthesised with input from teacher interviews into a survey.[31] The survey included a previously validated scale, which we utilised to measure *identity as a medical educator*: Identification with teaching is a four-item scale, adapted from engineering, to evaluate identification with a profession.[32] *Identity as a medical educator* is a measure of the extent to which teachers value both their role and performance in teaching as an important part of the self.[33] An example from this scale is: 'Being good at teaching is an important part of who I am'. The survey also included three scales, newly developed by the researchers for the purpose of this study: (i) a three-item scale of instructors' perceived *connectedness* with their department and colleagues (e.g. 'I feel connected to my [university name] department colleagues'); (ii) a four-item scale of motivation to try a new teaching method by forms of *appreciation* (acknowledgement, financial compensation, supervisor feedback or improved student

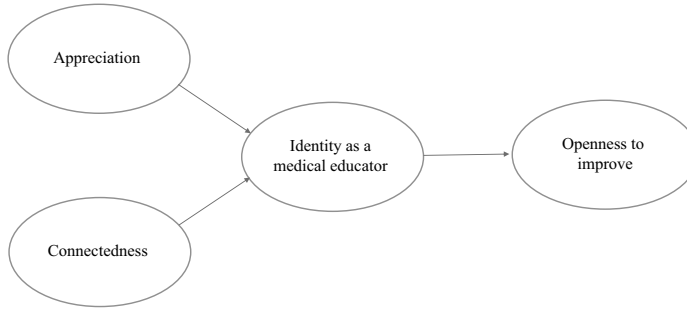

Figure 1 Proposed model

evaluations); and (iii) a three-item scale of *openness to improve* teaching (OP) (e.g. 'It is part of my responsibilities as a teacher to reflect on my teaching skills and how I can improve my teaching', 'It is part of my responsibilities as a teacher to use diverse teaching methods'). (Items used in each scale are provided in Data S1 or upon request from the primary author.) The items were based on similar items used in surveys published in the literature.[34–36] Participants rated statements on a 6-point Likert scale (1 = 'strongly disagree', 2 = 'disagree', 3 = 'somewhat disagree', 4 = 'somewhat agree', 5 = 'agree', and 6 = 'strongly agree'), but participants were also given the option of 'choose not to answer'.

Suggested guidelines[37] were utilised for the adaptation of the survey to Icelandic, which included translation by a bilingual expert into Icelandic, synthesis, back-translation by a second bilingual expert into English, review by an expert committee (two additional bilingual experts), and pilot testing with review. A total of 32 TF and 48 SF from HSS participated in the online pilot testing conducted a month prior to general administration of the survey. Icelandic translation of the validated scale showed similar internal consistency to previously reported measures[32,38,39] and all scales showed good or acceptable internal consistency with Cronbach's alpha (α),[30] as reported in Table 1.

Data analysis

Pilot testing identified no single item measures that were problematic as a result of the translation process; therefore, the pilot data were added to the main data collected for full analysis. Although 78 TF and 160 SF completed the survey, 12 TF and 42 SF did not choose to rate all the statements pertaining to the scales and were considered missing data points. Of these, we discarded the data from five TF and 14 SF because they chose to not rate more than one item from the same scale. With the remaining data from seven TF and 28 SF, we performed imputation using the average of the other item ratings in that scale as a substitution for the missing data. The final sample included 73 TF and 146 SF for the analysis. A flow-sheet figure from pilot testing to the final sample is available as Data S1 or upon request from the primary author (AGS).

We decided to use structural equation modelling (SEM) for analysis because of its flexibility in estimating relationships between constructs and because it accounts for measurement error.[40] It includes a measurement model that allows relationships between variables (items) and constructs (scales) through confirmatory factor analysis (CFA) and a structural path model that relates constructs to other constructs.[40] All statistical analyses were performed using SAS 9.4 (SAS Institute Inc., Cary, NC, USA). We used the PROC CALIS procedure for conducting the CFA, using the maximum likelihood estimation method. We obtained a measurement model with good fit to the data for all teachers and confirmed the good fit measurement model with the subgroups of TF and SF individually. We tested for factor structure and model fit and used the CALIS procedure for SEM with FACTOR model type used and latent factor variances fixed to 1.0. We estimated the hypothesised structural model for SF and TF individually. Fit indices using χ^2 and measures representing the three major index classes (i.e. absolute fit index, parsimonious fit index and comparative fit index [CFI]) determined the acceptability of the data-model fit as represented by standardised root mean square residual (SRMR), root mean square error of approximation (RMSEA) and CFI. According to Hu and Bentler[41] the model–data fit can be considered good if the SRMR value is

Table 1 Reliabilities and correlations amongst the scales

	α	1 All (TF, SF)	2 All (TF, SF)	3 All (TF, SF)
1. Appreciation	0.76	–		
2. Connectedness	0.78	−0.06 (−0.05, 0.04)	–	
3. Identity as a medical educator	0.80	0.25 (0.47, 0.18)	0.18 (0.02, 0.21)	–
4. Openness to improve	0.69	0.33 (0.51, 0.18)	0.18 (0.26, 0.15)	0.60 (0.55, 0.64)

All = both TF and SF combined; SF = sessional faculty; TF = tenure-track faculty; α = Cronbach's alpha.

≤0.08, the RMSEA value is ≤0.06 and the CFI value is equal to or >0.95. Other models using the same constructs in different relationships were estimated as well to determine if our hypothesised model was the best fit for each type of teacher. The significance threshold was set at 0.05.

RESULTS

The standardised factor loadings of the CFA for the individual observed variables associated with each scale (*identity as a medical educator*, *connectedness*, *appreciation* and *openness to improve*) ranged from 0.45 to 0.90 when considering all teachers, and all coefficients were statistically different from zero ($p < 0.0001$). The reliabilities for each measure, along with the correlations with the other factors with all teachers combined (and in the subgroups of TF and SF), are included in Table 1. As reported, internal reliability of the scales was good as indicated by Cronbach's alpha. The lowest correlations were seen between *connectedness* and *appreciation* and the highest correlations between *identity as a medical educator* and *openness to improve*. Correlations for TF were higher than for SF when considering the relationship between *appreciation* and both *identity as a medical educator* and *openness to improve*. A CFA with the *identity as a medical educator*, *connectedness*, *appreciation* and *openness to improve* measurement model for all teachers, in which all factors were allowed to covary, determined that each scale was unique, as shown by the following good fit indices: χ^2 (71) = 80.99, RMSEA = 0.03, SRMR = 0.05 and CFI = 0.99.

When the hypothesised model was applied to TF (n = 73; Fig. 2), the numbers indicated a good fit, except that the CFI (0.94) was less than the standard and there was a non-significant relationship between *connectedness* and *identity as a medical educator* ($\beta = 0.07$, $p > 0.05$). We considered modifying the model because we suspected that the *appreciation* and *connectedness* for the TF variable might be related to how supportive the departmental community was of teaching improvement. We modified the model as shown in Fig. 3 so that *connectedness* and *appreciation* would have a direct effect on *openness to improve* and model fit was superior (lower χ^2 and better fit indices). We refer to this model as the TF model from this point on. Further investigation of the structural patterns in the TF model showed that the hypothesised path leading from *appreciation* to *identity as a medical educator* was significant ($p < 0.0001$). Both the path from *identity as a medical educator* to *openness to improve* and the direct path from *appreciation* to *openness to improve* were significant ($p = 0.03$ and $p = 0.006$, respectively). The calculated indirect effect of 0.155 (*appreciation-identity as a medical educator-openness to improve*) was less than the direct effect of 0.39 (*appreciation-openness to improve*), so *identity as a medical educator* could not be assumed to be a but is assumed to be a full mediator between *appreciation* and *openness to improve* but is assumed to be a partial mediator.[42] The path from *connectedness* to *openness to improve* was close to being significant ($\beta = 0.23$, $p = 0.06$).

For the SF (n = 146), the hypothesised SEM model (Fig. 1) fit was considered the best fit, as shown in Fig. 4 (and will be referred to from this point on as the SF model). We also attempted to apply the new TF model and other models to our SF population, but they resulted in higher χ^2 values and fit indices, thus indicating the TF model was inferior to the SF model for predicting results for SF. Further investigation of the structural patterns in the SF model showed the hypothesised path leading from *appreciation* to *identity as a medical educator* was not

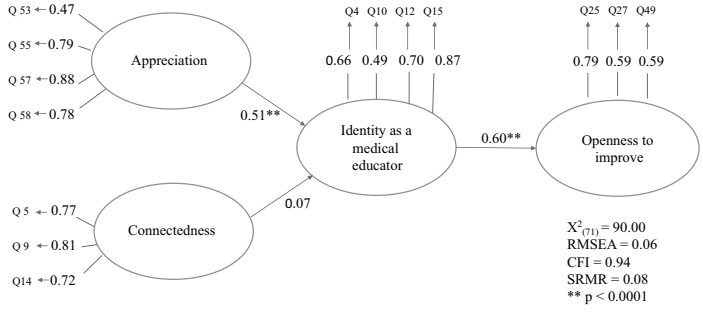

Figure 2 Hypothesised model with tenure-track faculty members (n = 73). Did not provide the best fit. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardised root meant square residual

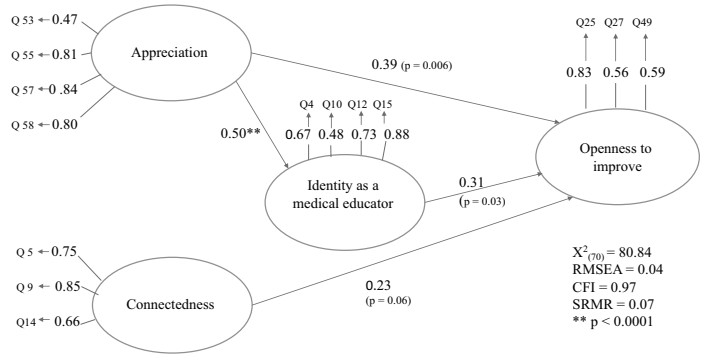

Figure 3 Tenure-track faculty model with tenure-track faculty members (n = 73). Best fit. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardised root meant square residual

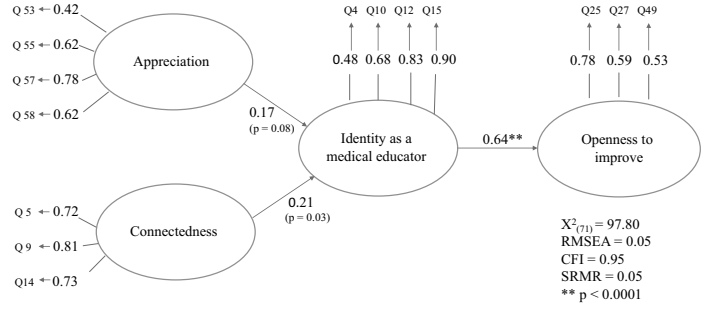

Figure 4 Sessional faculty model with sessional faculty members (n = 146). Best fit. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardised root meant square residual

significant at the 0.05 alpha level but was close to being significant (β = 0.17, p = 0.08). The path from *connectedness* to *identity as a medical educator* was statistically significant (β = 0.21, p = 0.03), as was the path leading from *identity as a medical educator* to *openness to improve* (β = 0.64, p <0.0001). We tested for mediation and found that *identity as a medical educator* was indeed a full mediator between appreciation and openness to improve as the β value for the direct path between *connectedness* and *openness to improve* (0.04) was less than the calculated indirect effect (0.13).

DISCUSSION

Summary of findings

The purpose of this exploratory study was to examine the extent to which perceived connectedness and received appreciation for trying a new teaching method predicted identity as a medical educator and openness to improve in TF and SF. We proposed a theoretical basis for appreciation and connectedness predicting identity as a medical educator based on a systematic review.[2] We then developed a model that included the addition of identity as a medical educator predicting openness to improve. We tested our hypothesis with CFA and SEM, determining the best fit model for TF and SF.

For our hypothesis, we proposed that connectedness and appreciation would predict identity as a medical educator, which would then predict openness to improve. The hypothesised model was the best fit for the SF population (Fig. 4); we noted, though, that connectedness and appreciation predicted identity as a medical educator fairly weakly. However, when we applied our model to TF, the structural path model required modification for best fit. Specifically, we obtained a better-fit model with appreciation predicting both identity as a medical educator and openness to improve, identity

as a medical educator predicting an openness to improve, and connectedness trending towards predicting openness to improve directly (Fig. 3).

Theoretical implications

Our findings may contribute to theory in several ways. First, in both the SF and TF models, there was a relationship between identity as a medical educator and openness to improve, as hypothesised. Regardless of type of teacher, an open attitude towards improving their teaching was higher when the faculty members rated their identity as a medical educator higher. These results appear to support the importance of FD efforts to develop ways to strengthen the identity of faculty members as medical educators as a way to improve teaching. This finding is consistent with the findings from other research studies.[7,19,24]

Second, we have provided support for the idea that identity as a medical educator and openness to improve can be predicted partially by a sense of appreciation and connectedness with the department. However, the fact that our models were different for TF and SF would suggest that the relationships between the factors of appreciation, connectedness, identity as a medical educator and openness to improve differ for SF and TF. In response, a different focus may be needed when designing FD for these populations.

Specifically, we may consider the direct work environment of each of the populations and what it means to 'be in community' in order to explore the results and possible implications suggested by these models. Contrary to our initial hypothesised model in which connectedness predicted identity as a medical educator, the TF model data suggested a direct relationship between connectedness and openness to improve. We suggest that this result, in part, reflects the importance of the direct work environment and community that TF experience in their department, as suggested in the literature.[2] In a supportive teaching community within a department, teachers may be secure in their identity because teaching is valued. We suggest that connectedness in this context is more about good relationships within the environment, freeing the teacher to focus on reflection, discussion, learning and working alongside other teachers without feeling threatened. Feldman and Paulsen[15] name 'supportive, effective department chairs' and 'frequent interaction, collaboration, and community among faculty' as two of the eight essential characteristics of a culture that supports teaching and improvement. Faculty learning communities provide similar support and have been associated with improved teaching.[43] The importance of informal support is confirmed in multiple studies on the transition from various types of health care practitioners to medical educators.[3,4,44] Our results would also suggest that a lack of connectedness within a department might limit this openness to improve.

In the TF model, we confirmed the hypothesis that appreciation for trying a new teaching method would predict identity as a medical educator directly, which predicted openness to improve. However, identity as a medical educator was not considered a full mediator between appreciation and openness to improve, a result that may have been affected by the fact that the prompt for our appreciation scale asked what would motivate the educator to try a new teaching method. This emphasis on trying a new teaching method might explain why we saw a direct effect of appreciation on openness to improve as well as on identity as a medical educator. A good demonstration of this effect was reported in a study by Adler et al.,[45] who showed that modest grants given by a medical school for innovative teaching not only created innovative, enduring programmes and laid the foundation for subsequent projects, but also promoted educators' professional identity. Lack of academic recognition and funding continue to be major challenges for medical educators.[26] Our results reinforce the idea that when good teachers are appreciated and recognised for their teaching, their identity as a medical educator is strengthened and they become more open to methods to improve teaching. Interestingly, researchers investigating the impact of the establishment of a teacher community within a health science school found increases in both a sense of connectedness and competence but not in a sense of appreciation.[9] Together with our model, these results would suggest that this recognition and appreciation may need to come from outside the local teaching community (e.g. from the university, medical community or society) in order to have it predict teachers' identity as a medical educator.[2,44,46] In summary, our TF model suggests that appreciation predicts identity as a medical educator, whereas connectedness within a department and appreciation predict on openness to improve for TF.

For SF, the direct work environment may also affect their identity as a medical educator. Our results suggest that their sense of connectedness and appreciation have some predictive value for their identity as a medical educator, but that their value

is fairly weak. We feel that this can be partially explained by some SF defining their work environment as the place where they are a clinician. Consequently, they would look for their sense of appreciation and connectedness as a 'clinician who teaches'[29] within their hospital or clinic. Alternatively, SF who realise they want to or need to develop as medical educators may turn to their teaching community within the respective department to validate their identity, as suggested in the SF model. However, their limited experience of connectedness to and appreciation from that teaching community as an SF ('I do not belong', 'I have limited contact with faculty', 'there is a lack of institutional engagement', 'I am excluded', 'I am invisible', and 'I am an outsider')[13,47,48] has the potential to hinder their identity as teachers. We feel that both these explanations (identity from their clinician role and lack of appreciation and a teaching community) may have some value in explaining the limited value of connectedness and appreciation in predicting identity as a medical educator in our SF model. Results reported in a article on this same sample of teachers demonstrated that the SF rated their identity as a medical educator at a level similar to the TF.[30] Given this result, we would speculate that SF may rely more heavily on a sense of competence (as a health care professional) and commitment to students for their teacher identity.[2]

We might speculate that the SF model is an underdeveloped TF model, being similar to what is seen in the early teaching years of health care faculty in general, where new medical educators rely on their clinical expertise initially for their identity as a teacher.[3–6] Browne and Webb[44] suggest that teachers need to make a conscious transition to be a medical educator by committing to acquiring and maintaining expertise in medical education, which may be difficult if clinicians do not see themselves as teachers. Riveros-Perez and Rodriques-Diaz[6] questioned whether clinicians are aware of this need for a conscious transition. In addition, Murray et al.[5] point out that universities also wrongly assume that being a senior clinician prepares someone for the academic world. If the SF model is an underdeveloped TF model, our results might suggest a possible continuum from clinician to medical educator,[6] where, as expertise in medical education is gained, appreciation for teaching may become more relevant to identity and openness to improve, whereas connectedness may become less about teacher identity and more about the relationship within a community of teachers.

Practical implications

Both the SF and TF models identified the importance of identity as a medical educator as a predictor of openness to improve by reflection and using diverse teaching methods. Therefore, one implication may be addressing ways to increase faculty members' identity as a medical educator to lead to more openness to improve. Researchers have documented that an individual's identification with a domain like teaching can be increased by increasing their perceptions of five motivational constructs, namely, empowerment, usefulness, success, interest and caring, in their work environment;[38,49] therefore, it may be possible to implement strategies to increase these perceptions for SF and TF in order to increase their openness to improve (see Jones[50] for specific strategies).

Our results suggest that TF may improve their teaching methods if they experience a positive teaching environment that includes a sense of connectedness within their department. To encourage this, experienced teachers could be asked to assist other teachers in reflecting on their teaching methods and possibly adopting some new methods. Authors of a systematic review of FD initiatives reported that over 30% of studies found that supportive relationships with other health science colleagues, as a form of community building, contributed to both individual and shared success in improving teaching methods.[24] Universities could consider taking active steps to develop communities of practice within departments so that quality teaching is supported and celebrated. Our results also suggest that appreciation shown to TF may strengthen their identity as a medical educator and openness to improve. An international survey of medical educators identified a lack of academic recognition as a major challenge[26] and negative opinions persist within medicine about medical educators.[46] Results from our exploratory study suggest that making efforts to build teacher connectedness within a department and appreciate good teaching will predict TF openness to reflection and diverse teaching methods and may, ultimately, benefit students.

Results from our SF findings supported our original hypothesis and model, and we speculated that the differing and weaker relationships when compared to TF might be a result of the SF not having moved as far on the continuum from clinician to medical educator. If we assume that identity as a medical educator is a desired construct and acts as a mediator between perceived connectedness and openness to improve in

our SF population, we suggest that some strategies recommended for new medical educators could be utilised with SF. First, universities may need to recognise the challenges of the transition from clinician to medical educator and support SF through the transition.[5] Second, SF who base their value as a teacher in their clinical skills may need to be made aware through education of their need for pedagogy about learning principles to increase their competence and credibility as a teacher.[6,44] Third, SF could benefit from being able to access knowledge and skills relevant to their teaching through convenient FD, possibly progressing them towards becoming a medical educator.[51] Finally, SF who rate their connectedness with the teacher community lower may be supported by developing (or including them in) FD communities that increase their connectedness to the respective department.[13] We suggest that implementing these changes may move SF on the continuum towards a more developed model of a medical educator, which may benefit students.

Limitations and future research

The results were obtained from only one health science school, and thus, it may not be possible to generalise them to all health science schools. However, the importance of connectedness and appreciation in faculty members' identity is well supported in the literature,[2] which suggests that our exploratory findings may contribute to the ongoing identity discussion. We used a validated 'identification with teaching' scale to measure identity as a medical educator but acknowledge that there is active discussion about differences between identifying with a profession and professional identity.[52] However, our belief is that the scale partially encompasses both the personal and sociocultural aspects associated with identity. Although we considered our TF sample fairly representative of the population with respect to demographics, we had limited knowledge about how representative our SF sample was of the actual population because we had difficulty contacting SF for participation in the study. However, both sets of demographics showed a good representation of disciplines, age groups and gender. We also acknowledge that our TF sample size (n = 73) was less than the recommended minimum of five participants per estimated parameter[53] and much less than other estimates of 10 per parameter[54] or a minimum of 200, as recommended in the literature.[55] However, we believed that the contrast between the SF and TF models was of interest to explore. In addition, we justified the use of smaller groups because our TF sample was small to begin with (n = 212), our TF response rate was reasonable (37%) compared to other needs assessments, our model was simple, all loadings were fixed to 1, and our correlations were strong.[56] Future research could include testing the models across multiple health science schools and using larger sample sizes. There might also be a benefit to investigating the results further with qualitative studies to explain teachers' experiences with connectedness and appreciation.

CONCLUSIONS

Our exploratory study examined a model in which connectedness and appreciation predicted identity as a medical educator and openness to improve. We found some support for this model, but we found variations in the model when comparing SF and TF. We speculated that the differences found might reflect the progression of a clinician to a medical educator and explored ideas that might be utilised to direct faculty development initiatives for these two different groups of faculty members. Based on our findings, we would suggest the following: (i) increasing appreciation for TF when they make efforts to improve their teaching; (ii) developing teaching communities within departments for TF; (iii) increasing awareness of and resources for the transition to medical educator for SF; (iv) increasing connection to departments for SF; (v) incorporating SF into teaching communities, and (vi) implementing FD that enhances identity as a medical educator. Further research is needed to find ways to encourage increased identity as a medical educator and improvement in teaching methods for all types of faculty members.

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REFERENCES

1 Rodgers CR, Scott KH. The development of the personal self and professional identity in learning to teach. In: Cochran-Smith M, Feiman-Nemser S, McIntyre DJ, eds. *Handbook of Research on Teacher Education: Enduring Questions in Changing Contexts*. New York, NY: Routledge/ Taylor & Francis Group 2008;732–55.
2 Van Lankveld T, Schoonenboom J, Volman M, Croiset G, Beishuizen J. Developing a teacher identity in the university context: a systematic review of the literature. *High Educ Res Dev* 2017;**36** (2):325–42.
3 Duffy R. Nurse to educator? Academic roles and the formation of personal academic identities. *Nurse Educ Today* 2013;**33** (6):620–4.
4 Hurst KM. Experiences of new physiotherapy lecturers making the shift from clinical practice into academia. *Physiotherapy* 2010;**96** (3):240–7.
5 Murray C, Stanley M, Wright S. The transition from clinician to academic in nursing and allied health: a qualitative meta-analysis. *Nurse Educ Today* 2014;**34** (3):389–95.
6 Riveros-Perez E, Rodriques-Diaz J. The journey from clinician to undergraduate medical educator involves four patterns of transformation. *Adv Med Educ Pract* 2018;**9**:7–15.
7 Lieff S, Baker L, Mori B, Egan-Lee E, Chin K, Reeves S. Who am I? Key influences on the formation of academic identity within a faculty development program. *Med Teach* 2012;**34** (3):e208–15.
8 Love LM, Haggar FL, McBrien SB, Buzalko RJ, Hartman TL, Shope RJ, Beck Dallaghan GL. Supporting the professional identity of medical science educators: understanding faculty motivations for quality improvement in teaching. *Med Sci Educ* 2018;**28** (4):655–65.
9 Van Lankveld T, Schoonenboom J, Croiset G, Volman M, Beishuizen J. The role of teaching courses and teacher communities in strengthening the identity and agency of teachers at university medical centres. *Teach Teach Educ* 2017;**67**:399–409.
10 Starr S, Ferguson WJ, Haley HL, Quirk M. Community preceptors' views of their identities as teachers. *Acad Med* 2003;**78** (8):820–5.
11 Steinert Y, Macdonald ME. Why physicians teach: giving back by paying it forward. *Med Educ* 2015;**49** (8):773–82.
12 O'Sullivan PS, Irby DM. Identity formation of occasional faculty developers in medical education: a qualitative study. *Acad Med* 2014;**89** (11):1467–73.
13 Buch K, McCullough H, Tamberelli L. Understanding and responding to the unique needs and challenges facing adjunct faculty: a longitudinal study. *Int J Educ Res* 2017;**16** (10):27–40.
14 Beauchamp C, Thomas L. Understanding teacher identity: an overview of issues in the literature and implications for teacher education. *Camb J Educ* 2009;**39** (2):175–89.
15 Feldman KA, Paulsen MB. Faculty motivation: the role of a supportive teaching culture. *New Dir Teach Learn* 2002;**1999** (78):69–78.
16 Kane R, Sandretto S, Heath C. An investigation into excellent tertiary teaching: emphasising reflective practice. *High Educ* 2004;**47** (3):283–310.
17 Berman AC. Good teaching is good teaching: a narrative review for effective medical educators. *Anat Sci Educ* 2015;**8** (4):386–94.
18 Mann K, Gordon J, MacLeod A. Reflection and reflective practice in health professions education: a systematic review. *Adv Health Sci Educ Theory Pract* 2009;**14** (4):595–621.
19 Stone S, Ellers B, Holmes D, Orgren R, Qualters D, Thompson J. Identifying oneself as a teacher: the perceptions of preceptors. *Med Educ* 2002;**36** (2):180–5.
20 Al Maghraby M, Alshami A. Learning style and teaching method preferences of Saudi students of physical therapy. *J Family Community Med* 2013;**20** (3):192–7.
21 Rognvaldsson S. Personal communication. 2016.
22 Schmidt HG, Wagener SL, Smeets GACM, Keemink LM, van der Molen HT. On the use and misuse of lectures in higher education. *Health Prof Educ* 2015;**1** (1):12–8.
23 Condon W, Iverson ER, Manduca CA, Rutz C, Willett G. *Faculty Development and Student Learning: Assessing the Connections*. Bloomington, IN: Indiana University Press 2016.
24 Steinert Y, Mann K, Anderson B *et al.* A systematic review of faculty development initiatives designed to enhance teaching effectiveness: a 10-year update: BEME Guide No. 40. *Med Teach* 2016;**38** (8):769–86.
25 Bond N. Developing a faculty learning community for non-tenure track professors. *Int J High Educ* 2015;**4** (4):1–12.
26 Huwendiek S, Mennin S, Dern P, Ben-David MF, van der Vleuten C, Tonshoff B, Nikendei C. Expertise, needs and challenges of medical educators: results of an international web survey. *Med Teach* 2010;**32** (11):912–8.
27 Schiekirka-Schwake S, Anders S, von Steinbüchel N, Becker JC, Raupach T. Facilitators of high-quality teaching in medical school: findings from a nation-wide survey among clinical teachers. *BMC Med Educ* 2017;**17** (1):178.
28 Valle M, Fuchs T. Teaching and learning communities: empowering adjuncts and ensuring quality. *J Educ Hum Dev* 2015;**4** (1):1–6.

29 Taylor EW, Tisdell EJ, Gusic ME. Teaching beliefs of medical educators: perspectives on clinical teaching in pediatrics. *Med Teach* 2007;**29** (4):371–6.
30 Snook AG, Schram AB, Sveinnson T, Jones BD. Needs, motivations, and identification with teaching: a comparative study of adjunct/sessional and tenure-track faculty. Under Review.
31 Artino AR, La Rochelle JS, Dezee KJ, Gehlback H. Developing questionnaires for educational research: AMEE Guide No. 87. *Med Teach* 2014;**36** (6):463–74.
32 Jones BD, Paretti MC, Hein SF, Knott TW. An analysis of motivation constructs with first-year engineering students: relationships among expectancies, values, achievement, and career plans. *J Eng Educ* 2010;**99** (4):319–36.
33 Jones BD, Ruff C, Osborne JW. Fostering students' identification with mathematics and science. In: Renninger KA, Nieswandt M, Hidi S, eds. *Interest in Mathematics and Science Learning*. Washington, DC: American Educational Research Association 2015;331–52.
34 Behar-Horenstein L, Garvan C, Catalanotto F, Hudson-Vassell C. The role of needs assessment for faculty development initiatives. *J Fac Dev* 2014;**28** (2):75–86.
35 Schönwetter DJ, Hamilton H, Sawatzky JV. Exploring professional development needs of educators in the health sciences professions. *J Dent Educ* 2015;**79** (2):113–23.
36 McGoldrick B, Watts JS, Economou K. *U.S. Postsecondary Faculty in 2015: Diversity in People, Goals and Methods, But Focused on Students*. Washington, DC: FTI Consulting Available at http://postsecondary.gatesfoundation.org/wp-content/uploads/2015/02/US-Postsecondary-Faculty-in-2015.pdf [Accessed 30 August 2018.]
37 Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine* 2000;**25** (24):3186–91.
38 Jones BD, Osborne JW, Paretti M, Matusovich H. Relationships among students' perceptions of a first-year engineering design course and their engineering identification, motivational beliefs, course effort, and academic outcomes. *Int J Eng Educ* 2014;**30** (6A):1340–56.
39 Tendhar C, Singh K, Jones BD. Using the domain identification model to study major and career decision-making processes. *Eur J Eng Educ* 2018;**43** (2):235–46.
40 Iacobucci D. Everything you always wanted to know about SEM (structural equations modeling) but were afraid to ask. *J Consum Psychol* 2009;**19** (4):673–80.
41 Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct Equ Modeling* 1999;**6** (1):1–55.
42 Sobel ME. Asymptotic confidence intervals for indirect effects in structural equation models. *Sociol Methodol* 1982;**13**:290–312.
43 Vesico V, Ross D, Adams A. A review of research on the impact of professional learning communities on teaching practice and student learning. *Teach Teach Educ* 2008;**24** (1):80–91.
44 Browne J, Webb K, Bullock A. Making the leap to medical education: a qualitative study of medical educators' experiences. *Med Educ* 2017;**52** (2):216–26.
45 Adler SR, Chang A, Loeser H, Cooke M, Wang J, Teherani A. The impact of intramural grants on educators' careers and on medical education innovation. *Acad Med* 2015;**90** (6):827–31.
46 Sabel E, Archer J. "Medical education is the ugly duckling of the medical world" and other challenges to medical educators' identity construction: a qualitative study. *Acad Med* 2014;**89**:1474–80.
47 Bunton SA, Corrice AM. An *Exploration of Part-Time U.S. Medical School Faculty: A Thematic Overview*. Washington, DC: Association of Amercian Medical Colleges 2011.
48 Jolley MR, Cross E, Bryant M. A critical challenge: the engagement and assessment of contingent, part-time adjunct faculty professors in United States community colleges. *Community Coll J* 2014;**38** (2–3):218–30.
49 Osborne JW, Jones BD. Identification with academics and motivation to achieve in school: how the structure of the self influences academic outcomes. *Educ Psychol Rev* 2011;**23** (1):131–58.
50 Jones BD. *Motivating Students by Design - Practical Strategies for Professors*, 2nd edn. Charleston, SC: CreateSpace 2018.
51 McAndrew M. Community-based dental education and the importance of faculty development. *J Dent Educ* 2010;**74** (9):980–5.
52 Miscenko J, Day DV. Identity and identification at work. *Organ Psychol Rev* 2016;**6** (3):215–47.
53 Bentler PM, Chou C-P. Practical issues in structural modeling. *Sociol Methods Res* 1987;**16** (1):78–117.
54 Nunnally JC. *Psychometric Theory*. New York, NY: McGraw-Hill 1967.
55 Boomsma A. Nonconvergence, improper solutions, and starting values in lisrel maximum likelihood estimation. *Psychometrika* 1985;**50** (2):229–42.
56 Kenny DA. *Measuring Model Fit* 2015. Available at http://davidakenny.net/cm/fit.htm. [Accessed 25 April 2019.]

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article:

Data S1. Flow diagram from pilot testing to sample, Sample distribution table and Scales and items table.

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ORIGINAL RESEARCH

'We have different needs': Specifying support for classroom and clinical sessional educators

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Abstract

Context: Both classroom and clinical sessional educators are often overlooked in faculty development, even though they play an important role in student learning. Our aim was to contrast classroom and clinical sessional educators´ experiences of and perceived needs for connectedness, appreciation and support, in relation to their teaching quality. We then utilised these results to make suggestions for supporting these educators.

Methods: The participants (11 physical therapy sessional educators: four clinical; seven clinical, and classroom) took part in three focus groups. We based the interview guide questions on previous survey results, used a critical theory research paradigm and performed thematic analysis.

Results: We identified four emerging differences between physical therapy sessional educators with experience in the classroom and clinic. Classroom sessional educators needed: (a) more connectedness; (b) more appreciation; (c) more access to the learning management system, and (d) both different and similar faculty development when compared to clinical sessional educators. Differences were greater in classroom sessional educators who taught more hours. We also saw similarities in the need for feedback on teaching, orientations and communication, a better salary and clinical workplace support their role of an educator. Suggestions for context-dependent support for sessional educators were designed to address these similarities and differences.

Conclusions: Talking to various types of sessional educators about their teaching needs is the first step in providing effective faculty development. Varying needs for connectedness, appreciation, pedagogy and access to the learning management system amongst physical therapy sessional educators highlighted the need for an investment in classroom educators who teach multiple hours and want to grow as health science educators. Differences between classroom and clinical sessional educators brought to the forefront the importance of individualised, contextual faculty development and administrative or departmental action that supports sessional educators. The resulting context-dependent suggestions for improvement of support of sessional educators have the potential to improve the quality of health science teaching overall.

1 | INTRODUCTION

According to the literature, providing faculty development (FD) to sessional educators (adjunct, casual, contract, contingent and non-tenured track faculty member) is challenging, especially if aiming to enhance the quality of learning and teaching.[1] The editor of a special issue of the *International Journal for Academic Development* dedicated to 'sessionals' (as we will refer to them) goes on to argue that there is still much work to be done to address their FD needs.[1] The editor concludes by stating that faculty developers need to demand data on sessionals and seek their input into professional development needs.[1] As evidence of increasing interest in the topic, 74% of the research on sessionals in all areas of higher education was published in the last 5 years; however, most originates in Australia and the United Kingdom.[2] The research that has been carried out with sessionals as participants still reveals common feelings of being isolated, disposable, marginalised, excluded and lacking support as a teacher.[3-5] In response, the Australian Government Office of Teaching and Learning funded the Benchmarking Leadership and Advancement of Standards for Sessional Teaching (BLASST) to provide guidance to universities, departments and individuals on how to support, enhance the teaching quality of, and sustain good practice of classroom sessionals[6]; however, its adoption for use around the world has been slow.

Most research focuses on the needs of sessionals as a general group who teach in the classroom,[2] which may or may not apply to all sessionals in the health sciences. (For the purposes of this study, health science sessionals were defined as health care professionals who taught health science students directly in the classroom and/or clinic and were considered non-tenured.) Similar to general sessionals, it is imperative that health science sessional needs be assessed to promote teaching quality.[7] Based on an analysis of survey data, Snook et al[8] compared health science sessionals to tenure-track faculty members and found that sessionals wanted more pedagogy before starting to teach and sensed less connectedness to their department. Compared with tenured faculty members, they were more likely to be motivated to improve their teaching practice if they felt appreciated. Utilising structural equation modelling, the same authors found significant but fairly weak associations for sessionals when comparing the extent to which a sense of connectedness and a sense of appreciation would predict identity as a health science educator.[9] Recently, there has been more research into the importance of health science educators' sense of identity,[10-12] because health science sessionals might struggle with and be affected by the culture of their working environment.[13-15]

In addition, unique differences may exist in the needs of health science sessionals because they can teach in the working environments of both the university classroom and the hospital clinic. There is some research on FD needs for clinical sessionals for specific medical specialties,[16-19] but little research about classroom sessionals' needs outside the field of nursing.[20,21] If we are to talk about FD for health science sessionals without referring to a specific discipline, it is vital that we add data from a variety of health disciplines, including disciplines not as well researched (eg, physical therapy [PT]), in order to broaden the discussion. We argue that both classroom and clinical sessionals are important to health science students' learning experience and, therefore, FD for each group should be considered a priority. However, the lack of comparative research on health science sessionals' needs[7,22] and their experiences and engagement,[23] along with the common doubts about sessionals' commitment and work ethic,[24] threaten the development of appropriate FD for these groups. We identified a gap in the international literature regarding seeking and comparing input from classroom and clinical health science sessionals and, from this information, identify solutions for their needs for connectedness, appreciation and FD support. Our aim was to contribute to and deepen the understanding of the experiences of PT sessionals, clarifying the similarities and differences between classroom and clinical sessionals. From this discourse, we wanted to provide context-specific suggestions for improvement that could positively impact these important educators and their teaching.

2 | METHODS

2.1 | Research design

We utilised a critical theory research paradigm because the reality of being a sessional in either the classroom or clinic is affected by competing interests, and we wanted the voice of the less powerful sessional to be heard.[25] Our thought process was that past assumptions and a lack of research on health science sessionals have led to a lack of understanding of their specific support needs. We used focus groups as we wanted to gather different participants' experiences of connectedness, appreciation and support, and capitalise on their communication with each other on these topics.[26] We chose an inductive thematic analysis approach with open coding, creating themes to identify, analyse and report patterns within the data.[27,28] Completing the critical theory research paradigm, we utilised this information to make context-specific suggestions for change that may benefit sessional educators.[25]

2.2 | Context, participant selection and ethics

The focus groups took place in November 2018 at the School of Health Sciences (SHS) at the University of Iceland. Iceland has been a full member of the Bologna Process/European Higher Education Area since 1999.[29] The health sciences within the higher education system have a strong connection/cooperation with universities in other Nordic countries, but many of them also partially model their education after North America. At the time of the study, there were 212 tenured faculty members and over 1000 sessionals associated with teaching students at the SHS.[30] The PT department at the University of Iceland was part of the Faculty of Medicine and had five full-time and three part-time tenured faculty members and over 100 sessionals. The FD for the SHS is provided, in general, from the Center of Teaching

and Learning (CTL) and, specifically, at the time of the study, from the second author (ABS). One of the stated strategies of the University of Iceland (2016-2021) is to improve the quality of teaching by increasing the support of sessionals.[31]

We used a convenience sample from the PT sessional population that had participated in a previous survey.[8] Virtually all PT sessionals are practising physical therapists and teach at the university as a secondary career. Many have had experiences teaching students clinically and some sessionals teach in the classroom as well. We emailed them an invitation to participate in the focus groups and included a statement about the university's goals to improve sessional support. Our goal was to have at least three focus groups because research has shown that analysis of the data from three focus groups will identify all of the most prevalent themes of the topic being discussed.[32] We wanted to include sessionals who had experiences teaching both in the classroom and clinic, as we felt they could comment best on the differences between the needs of classroom and clinical sessionals. We included sessionals who only taught in the clinic in our convenience sample to reinforce the needs of clinical sessionals and because they are under-represented in the general research literature on sessionals.[2]

The Icelandic BioEthics Committee indicated there was no need for their approval due to the nature of data. We announced the research project to the Icelandic Data Protection Authority (S8324/2017). All participants signed consent forms that indicated that the focus group proceedings would be recorded, transcribed by a professional service and depersonalised. Only ABS and AGS had access to the raw data.

2.3 | Data collection and analysis

All three focus groups involving physical therapists were conducted in Icelandic and took place in a neutral university building after working hours. AGS and the facilitator ABS developed the interview guide, which consisted of some results from a survey[8] and questions to initiate or facilitate the discussion of the results (the interview guide is available in Appendix 1). The focus group participants identified at the beginning whether they taught in both the classroom and clinic, or only in the clinic. If a participant taught in the classroom, they indicated to what extent (one to two lectures, part of the course or the whole course). The facilitator was careful to make sure that all participants had an opportunity to express their opinions and thoughts. All data were audiorecorded and transcribed verbatim by a professional transcriber, with inclusion of vocal inflections (eg, hesitations, silence and laughter).

AGS performed thematic analysis[27] consisting of generating initial codes, collating into sub-themes, combining into main themes, and extracting examples of quotes. During analysis, AGS noted whether the quote came from a sessional who had teaching experiences only in the clinic or a sessional who also had teaching experiences in the classroom and to what extent they taught. This allowed identification of which themes were common to all sessionals and which themes were specific to sessionals who taught in the classroom or clinic. Thematic saturation was determined over the course of the three groups as described in the Results. ABS confirmed the themes and use of quotes based on the transcriptions and her experience as a facilitator. The third author (SAA) was given access to the de-identified recordings and transcriptions to analyse them independently as a form of investigator triangulation[33]; the purpose of this was to confirm the initial findings and saturation, to note any subtleties or vocal inflections missed in the language, and to provide contextual information regarding the PT department. SAA and AGS then integrated their findings to produce the thematic results. The quotes were translated into English by a bilingual expert, confirmed by SAA, and appear in the Results with added contextual information and vocal inflections in brackets, and speaker identification in parentheses. Themes, sub-themes, and quotes were separated based on whether they applied to classroom sessionals, clinical sessionals or all sessionals. From these results and groupings, we determined specific suggestions that could positively affect these educators and their teaching.

2.4 | Reflexivity

With respect to reflexivity, AGS was a doctoral student at the time of the study, minimally known to some participants, and present at the focus groups as an observer. AGS had first-hand experience as a tenured faculty member in the past and was, at the time of the study, a sessional in the PT department, making her sensitive to the needs of sessionals in a department heavily dependent on sessional teaching. ABS facilitated all the focus groups and was not or minimally known to the participants. ABS works for the CTL and was accompanied by a co-worker from the CTL, also not known to participants, who acted as an assistant facilitator. Both had limited knowledge of the working conditions of sessionals. ABS and her co-worker are not health science professionals and have experience in qualitative research. SAA has years of experience as a tenured faculty member in the PT department and has prior experiences as both a tenured-track faculty member and a classroom sessional in another Icelandic university, teaching nursing and occupational therapy students. She knew many of the sessionals in the PT department, hence she did not participate in the focus groups but was given access to the de-identified recordings and transcriptions. She is sensitive to the context of the PT department, the context of the Icelandic higher education system for health professionals, and the needs of classroom sessionals. She is also experienced in qualitative research methods. All authors are bilingual, with English as a native language for AGS and Icelandic for ABS and SAA; however, both ABS and SAA have lived and studied extensively in English-speaking countries.

3 | RESULTS

The participants were 11 physical therapists; seven had experiences teaching in the classroom and the clinic and four had experiences

teaching only in the clinic. There were nine women and two men, and their median age was 53 years, with a range from 31 to 63 years old. They practised at various facilities (about half in hospitals and half in rehabilitation) and had various specialties within the field of PT. More specific information on participants is not included here to prevent identification.

Our first focus group consisted of sessionals who had experiences as both classroom and clinical teachers; this established themes pertinent to each group and themes in common. The second focus group consisted primarily of sessionals with experiences in clinical teaching and reinforced and added to the clinical sessional themes discovered in the first focus group. Finally, the third focus group was again primarily sessionals who had experiences as both classroom and clinical teachers. In this group, similar themes specific to classroom or clinical teachers and themes in common were heard again and it was determined that we had reached saturation.

The PT sessionals noted differences and similarities between the needs of classroom and clinical sessionals. The emerging themes were: (a) differing needs for connectedness to the department; (b) differing needs for appreciation from the department; (c) differing needs for access to the learning management system (LMS), and (d) differing needs for pedagogy. These are presented in Table 1 with sub-themes and representative quotes. There were also similar themes noted for all sessionals, including needs for feedback on their teaching, communication, orientations (specific to context), a better salary and support from clinical work facilities in the role of educator. Interestingly, both types of teachers saw a pedagogical course as a recruiting tool for new teachers and appreciated the interest in them as sessionals.

In addition to the above, we noted a few observations from our analysis: (a) the main emotions expressed during the groups were both positive and negative -wanting knowledge, acceptance and openness, but also resignation, frustration and uncertainty; (b) sessionals who taught more hours in the classroom expressed stronger needs for connectedness and appreciation than those who taught less, and (c) it was obvious that the participants were learning from each other throughout the focus group discussions.

Based on our results and consistent with the critical theory research paradigm, we made suggestions for addressing the specific and common needs of classroom and clinical sessionals in Table 2. The first 13 were based on differences observed in connectedness, appreciation, pedagogy and need for the LMS and feedback.

4 | DISCUSSION

4.1 | Contribution to the literature

This study adds to the health science literature by deepening the understanding of the perceptions and needs of sessionals with teaching experiences in different contexts (classroom and clinical), using qualitative methods with investigator triangulation. We could not identify any similar comparative studies on classroom and clinical sessionals' needs in any of the health sciences. This study also adds to the research on sessionals carried out on the seldom-studied health profession of PT. As many of the discovered themes are consistent with other disciplines both outside[2] and within the health sciences (in nursing),[20,21] we suggest that the results may also be applied to the health sciences in general.

Our results highlight the importance of considering context in determining differing sessional needs for connectedness, appreciation, LMS access and pedagogy. The resulting suggestions may be utilised to address institution/department issues. They may also be utilised to design FD for health science sessionals that is engaging and relevant to their personal and contextual needs, which should motivate them to learn and grow as health science educators.[34]

4.2 | Various and contrasting needs for connectedness and appreciation

One area of contrast between classroom and clinical PT sessionals was the need for connectedness and appreciation. Our results concurred with other studies that found that sessionals often feel excluded and unappreciated.[2,4] Of concern was our classroom sessionals' feelings of being alone, their questioning of whether the university and PT department cared about the quality or value of their work, and their desire to be noticed as educators. This might have serious repercussions on their identity as classroom educators if they construct their educator identity in the context of establishing legitimacy and recognition within the department.[1] To address these concerns, we might consider suggestions from the literature, which include course coordinators providing more feedback on teaching, sessional representation in department decisions, and meetings for professional and social reasons[7,20]. By contrast, our results also agreed with literature suggesting that the sessional population is heterogeneous.[35] This was especially apparent as some of our participants, mainly clinical sessionals, indicated no need for more connectedness and appreciation, appearing to rely more on their sense of belonging to their clinical work community and their professional values for their identity.[12,17]

These contrasting results with respect to connectedness and appreciation might explain why Snook et al[9] found weaker values for connectedness and appreciation predicting a health science educator identity for sessionals but stronger values for tenure-track faculty members. The authors suggested that, as a teacher moves towards an identity as an educator, both connectedness within a teaching community and appreciation of an educator's teaching quality become more important, both to an identity as a health science educator and to being open to improving teaching. We suggest that continuing efforts need to be made to address the issues of connectedness and appreciation for sessionals, with special attention paid to classroom sessionals, who teach a considerable number of hours and desire closer relationships, as this may help them develop their identity as health science educators.

TABLE 1 Classroom and clinical sessionals: themes, sub-themes and supporting quotes

Theme	Type	Sub-theme	Quote example
Needs	Both	We have different needs	*And naturally, clinical teachers have completely different needs than those who teach in the classroom [many agree] (FG3, P1)*
			Yes, completely different (FG3, P5)
Connectedness	Class	Lacking connectedness	*One is a bit alone as a sessional teacher [many confirm], not a bit [alone], one is very much alone [laugh] (FG3, P6)*
			Yes completely alone (FG3, P3)
			I have to ask what is going on (FG1, P2)
			If I taught more, I would want to be more connected and know more about teaching (FG1, P2)
	Clinic	Appropriate connectedness	*I think the relationship with the PT department is fine (FG2, P3)*
			Naturally, I have a full-time job at the hospital and I don't exactly view the PT department as my own group (FG2, P2)
Appreciation	Class	Do not feel appreciated	*I think they have no idea [if I am a good teacher or not] (FG3, P4)*
			I don't know [if the university considers what I am doing important] (FG1, P2)
			I think all this support [feeling connected and receiving feedback] helps you feel like a teacher, and that a few people see that you are doing something (FG2, P1)
	Both	No appreciation needed	*Because I learn so much (FG2, P1)*
			To not lose any of our experience and knowledge, we want to pass it on (FG3, P3)
Learning management system	Class	Lack of access causing isolation and limits student feedback	*I think this [not having access] is ridiculous (FG3, P2)*
			It is embarrassing to ask students to open up the computer for me (FG3, P5)
			There are no instructions from the university telling us how to get student feedback (FG1, P2)
			We never get any emails from the Center of Teaching and Learning (all FG unless graduate student)
	Clinic	Not sure if they need	
Pedagogy	Class	Want specific to being classroom teacher	*[This pedagogical course] is something we should attend (FG1, many)*
			I would like someone I could talk to after my course … receive feedback … maybe answer some questions I might have (F3, P6)
			So we could follow the newest innovations, the technological advances are extensive and there are requirements and other things that are not passed on to us (FG3, P1)

(Continues)

TABLE 1 (Continued)

Theme	Type	Sub-theme	Quote example
	Clinic	Want specific to being clinical teacher	*It [a course on how to be a clinical instructor] needs to be regular and then even have another course for those who have taken the course just to hone their skills (FG2, P2)*
			How do you, for example, give feedback when you in some kind of assessment of clinical skills, are doing it the right way? And … how can one give clearer guidance so that the student gets the best, and most out of it (FG2, P3)
	Both	Want before starting to teach	*I received none, none whatsoever [pedagogy] (FG3, P4)*
			One is just a sessional teacher and maybe lacking education in pedagogy, one sometimes is kind of, yes, using your instincts? (FG1, P1)
		Want convenient, condensed pedagogy	*Are there teaching methods that you are interested in hearing about? (Facilitator FG3) Yes, no question. (P6) It would completely depend on what time of day. (P4) And how extensive it is, if it is several days. (P5) And how long it is. (P4) But having a course or presentation would be brilliant (P6)*
Pedagogical course as tool to recruit new teachers	Both	Insecurity about not feeling supported in teaching	*To offer a course [on pedagogy in higher education] and encourage [physical therapists to participate], just so that people could see that they could take part in teaching (FG3, P5)*
			I think that it could be very good, if the University would do this, for both those who teach clinical skills as well as those who are open to being a classroom teacher … and the young people would feel that, yeah, I feel supported and that it will be OK, and then I think maybe it will be easier to get them to be teachers (FG3, P3)
Focus groups	Both	Appreciative of interest	*I think it is great that these issues are being looked at … that there is some interest (FG2, P1)*

Abbreviations: Class, classroom sessionals; Clinic, clinical sessionals; FG, focus group; P, participant; PT, physical therapy. Added contextual information and vocal inflections in brackets, and speaker identification in parentheses.

4.3 | Lack of access to the LMS and communication

Although PT sessionals who taught in the clinic rarely mentioned access to the LMS, it was clear that not having this access was limiting student and department feedback and was frustrating for PT classroom sessionals who taught more hours. A lack of access to the LMS and student evaluations have been reported in the literature as barriers to communication with sessionals[4]; however, 'feedback on my teaching performance' was the strongest predictor of teaching engagement in a study of 306 teachers at a medical centre.[36] As both our PT sessionals and the sessional literature report perceptions of a lack of feedback from the department as a lack of caring,[37] departments should consider providing access to the LMS for classroom sessionals a priority, especially as a way to provide feedback on classroom teaching. Lack of access to the LMS was also an obstacle to awareness of CTL offerings for our sessionals, another problem commonly reported in the sessional literature,[2,5,38] which was possibly limiting the growth of sessionals as educators.

4.4 | Different and similar needs for pedagogy

We observed both differences and similarities between PT classroom and clinical sessionals with respect to pedagogical needs.

TABLE 2 Suggestions for ways in which faculty developments, departments and universities can increase sessional support

	Class	Clinic
(1) Acknowledge differing contextual needs	x	x
(2) Create different levels of classroom sessionals based on hours taught	xx	
(3) Require course coordinators to provide feedback on teaching	xx	
(4) Include in department and curricular decisions	xx	x
(5) Meet academic faculty members regularly for professional and social reasons	xx	x
(6) Reinforce professional values as a motive to teach	x	x
(7) Access to learning management system	xx	
(8) Ensure feedback on their teaching	x	x
(9) Provide context-specific pedagogy before starting to teach	xx	x
(10) Provide ongoing pedagogy for classroom teaching	xx	
(11) Provide ongoing pedagogy for clinical teaching		x
(12) Ensure that pedagogy provided is condensed and convenient	x	x
(13) Provide context-specific pedagogical course to recruit teachers	x	x
(14) Provide context-specific orientations and welcomes	x	x
(15) Suggest that clinics provide earmarked time for employees to supervise students		x
(16) Talk to sessionals to find out what their needs are	x	x

Abbreviations: Class, classroom sessionals; Clinic, clinical sessionals; x, need; xx, greater need amongst classroom sessionals who teach more.

Elder et al[21] advocated in the nursing literature for an online support system for classroom sessionals, as well as a mentoring programme with peers and experienced faculty members. This emphasis on peer mentoring seems to be in contrast with our results, in that most of our classroom participants appeared more focused on learning from 'teaching experts' (CTL pedagogy course; the course coordinator). This could reflect an insecurity in their own teaching expertise, which was also seen in their comments about classroom technology. Possible reasons for this insecurity could be their lack of classroom pedagogy, a lack of faith in their peers' knowledge of classroom pedagogy, a cultural value for expertise, or a by-product of the fact that representatives from the CTL were present. Although our participants seemed focused on general pedagogical principles, they appeared more focused on learning about teaching by receiving specific feedback within a classroom course they were teaching, pointing to the importance of relevant, individualised pedagogy for these classroom sessionals.

More research has been carried out on the needs of clinical sessionals in the health sciences,[16-19,38] although most is in specific disciplines within medicine and not in PT. Similar to our results, a common theme reported in the literature was the feeling of being unprepared to teach and desiring an orientation and instruction on being a clinical educator.[17,18] Our clinical educators also talked about the importance of providing constructive feedback to students. Bearman et al[16] identified the learning priorities of clinical educators across multiple health science professions and concluded that developing constructive feedback practices was their highest priority. The authors suggested that FD programmes that specifically targeted providing constructive feedback in challenging situations would be well received by clinical sessionals; an idea that was strongly supported by our participants.

With respect to pedagogical instruction, neither classroom nor clinical PT sessionals had received any instruction prior to teaching and 'learned by doing,' as reported in a systematic review of professional development for all types of sessionals.[2] We saw the same pattern of sessionals receiving no pedagogical instruction prior to teaching when examining quantitative and qualitative literature specific to nursing and medicine.[39-42] This could be a source of teaching insecurity, as seen in our sessionals. This lack of pedagogical instruction appears to be especially common in the health sciences, where clinical skills are mistakenly seen as enough preparation to teach.[43,44] However, educator identity formation in the health sciences is known to take time[45] and a lack of formal training has been suggested to have a negative impact on teacher identity.[15] The fact that some of our participants saw a context-specific pedagogical course as a way to recruit younger sessionals highlighted their belief that formal training is a way to support teaching and make becoming a teacher not so formidable for prospective sessionals. Showing a willingness to learn more about teaching, similar to other sessionals,[2] all PT sessionals also emphasised the importance of condensed FD that is relevant to their particular circumstances, an alignment that needs to happen for faculty members to be motivated to learn and improve their teaching competence.[34]

4.5 | Other similarities and additional observations

We noted other similarities between our PT classroom and clinical sessionals documented in the literature. Orientations to both the department and university, with relevant and specific information for classroom sessionals, are important[2] but so are orientations for clinical educators. The lack of support in the workplace for various disciplines of clinical educators was also reported in an activity analysis by Elmberger et al[15] with the authors concluding that, in teaching hospitals, the activity of education is often less valued and prioritised, being at odds with patient care. The authors suggested the creation of educational discussions in the workplace and even a workplace requirement of FD participation with earmarked time to support the educational development of sessionals as a possible solution.

We suggest that the focus groups allowed these sessionals to share experiences associated with their teaching reality, to learn from one another, even if their beliefs or statements were not always correct, and to suggest ideas for support. Our results also supported the idea that classroom sessionals who taught more hours tended to have more needs as educators. Finally, the fact that participants expressed gratitude for the focus group discussion (Table 1) demonstrated the importance of seeking their input as a source of information[1] and also to encourage their identity and worth as educators.

4.6 | Applications and takeaways

Consistent with the critical theory paradigm, we provide a summary of suggestions for support of PT sessionals, separating out specific and common needs of classroom and clinical sessionals in Table 2. We suggest that the first and last suggestions, recognising and asking about contextual differences, are important first steps for all sessionals. The needs for connectedness and appreciation amongst health science sessionals may vary greatly and should be considered by faculty developers and universities. In general, classroom sessionals who teach more hours had greater needs for connectedness and appreciation in our study and these needs may affect educator identity. This leads us to the second suggestion of Table 2: developing different levels of support for classroom sessional faculty members based on how many hours they taught in the classroom. A third main application with multiple suggestions is that health science sessionals should be taught the craft of teaching within the context of where they teach. Aligning universities, FD and departments with these needs could motivate sessionals to improve their teaching.[34]

4.7 | Limitations and future research

One limitation is that the participants in this study were only from the field of PT and, therefore, our results may not apply to all health science sessionals. However, classroom sessional data are lacking from health science fields outside nursing; therefore, our results add another discipline and voice to the discussion on sessionals' needs and broaden the applications to a wider audience. In addition, the issues we identified do not appear to be specific to PT, and we suggest that these results may be of importance to any health science department with a larger number of sessionals. Although the analysis was limited to 11 participants, we could assume that the most prevalent themes were identified with the three focus groups[32] and also were able to establish saturation of the themes over the three focus groups. Another limitation is the argument that the issues mentioned are local to this department, university and culture. However, we argue that many of the issues discussed by our participants are reported in the literature and so appear to be global in nature. Future research should continue to seek to add to our knowledge about the needs of both classroom and clinical sessionals in all fields of the health sciences and across the world through qualitative, quantitative and mixed methods research so that a systematic approach to FD for health science sessionals can be developed and used consistently across universities and countries.[1] A possible idea would be the adaptation of Australia's BLASST to health science sessionals in both the classroom and clinic as a way to support, enhance the teaching quality of, and sustain good practice of sessionals.[6]

5 | CONCLUSIONS

Universities and departments should consider the differing needs of their health science sessionals in the classroom and clinic if they want to engage sessionals in improving their teaching methods and thus student learning. We argue that adding the voice of the physical therapist in both the classroom and clinic broadens the existing literature on the needs of sessionals and confirms previous findings in other health science fields. Finding and talking to sessionals about their teaching needs are the first steps in providing effective FD. Discussing specific sessional needs for connectedness, appreciation and support within a classroom and clinical context brought to the forefront important differences and similarities that could be addressed to support sessional educators. The results of this investigation may have implications for individual sessionals, departments, FDs, universities and teaching clinical facilities, as well as health science students and, ultimately, patients.

AUTHOR CONTRIBUTIONS

AGS made substantial contributions to the conception and design of the work, was part of the acquisition, analysis and interpretation of the data, drafted the work, revised it for critical intellectual content, approved the final version and agrees to be held accountable for all aspects of the work. AGS contributed to both revisions and the second version of the manuscript. ABS made substantial contributions to the conception and design of the work, was part of the acquisition, analysis and interpretation of the data, revised the draft for critical intellectual content, approved the final version, and agrees to be held accountable for all aspects of the work. ABS contributed to both revisions and the second version of manuscript. SAA was part of the analysis and interpretation of the data, revised the draft for critical intellectual content, approved the final version, and agrees to be held accountable for all aspects of the work. SAA contributed to both revisions and the second version of manuscript.

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CONFLICTS OF INTEREST

The authors declare no competing interests.

ETHICAL APPROVAL

The Icelandic BioEthics Committee indicated there was no need for their approval due to the nature of the data. We announced the research project to the Icelandic Data Protection Authority (S8324/2017) and all participants signed consent forms that indicated that the focus group proceedings would be recorded, transcribed by a professional service and depersonalised, with only AGS and ABS having access to the raw data.

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REFERENCES

1. HarveyM. Quality learning and teaching with sessional staff: systematising good practice for academic development. *Int J Acad Dev*. 2017;22(1):1-6.
2. HitchD, MahoneyP, MacfarlaneS. Professional development for sessional staff in higher education: a review of current evidence. *High Educ Res Dev*. 2018;37(2):285-300.
3. RothengatterM, HilR. A precarious presence: some realities and challenges of academic casualisation in Australian universities. *AUR*. 2013;55(2):51-59.
4. RyanS, BurgessJ, ConnellJ, GroenE. Casual academic staff in an Australian University: marginalised and excluded. *TEAM*. 2013;19(2):161-175.
5. LeighJ. 'I still feel isolated and disposable': perceptions of professional development for part-time teachers in HE. *JPAAP*. 2014;2(2):10-16.
6. HarveyM, LuziaK, ParkerN, BrownN, McKenzieJ. Benchmarking with the BLASST sessional staff standards framework. *JUTLP*. 2013;10(3):1-15.
7. ForbesMO, HickeyMT, WhiteJ. Adjunct faculty development: Reported needs and innovative solutions. *J Prof Nurs*. 2010;26(2):116-124.
8. SnookAG, SchramAB, SveinssonT, JonesBD. Needs, motivations, and identification with teaching: a comparative study of temporary part-time and tenure-track health science faculty in Iceland. *BMC Medical Education*. 2019;19(1):349.
9. SnookAG, SchramAB, JonesBD, SveinssonT. Factors predicting identity as educators and openness to improve: an exploratory study. *Med Educ*. 2019;53(8):788-798.
10. LoveLM, HaggarFL, McBrienSB, et al. Supporting the professional identity of medical science educators: understanding faculty motivations for quality improvement in teaching. *Medical Science Educator*. 2018;28(4):655-665.
11. SteinertY, O'SullivanPS, IrbyDM. Strengthening teachers' professional identities through faculty development. *Acad Med*. 2019;94(7):963-968.
12. SteinertY, MacdonaldME. Why physicians teach: giving back by paying it forward. *Med Educ*. 2015;49(8):773-782.
13. CantillonP, D'EathM, De GraveW, DornanT. How do clinicians become teachers? A communities of practice perspective. *Adv Health Sci Educ*. 2016;21(5):991-1008.
14. O'SullivanPS, IrbyDM. Reframing research on faculty development. *Acad Med*. 2011;86(4):421-428.
15. ElmbergerA, BjorckE, LiljedahlM, NieminenJ, BolanderLK. Contradictions in clinical teachers' engagement in educational development: an activity theory analysis. *Adv Health Sci Educ*. 2019;24(1):125-140.
16. BearmanM, TaiJ, KentF, EdouardV, NestelD, MolloyE. What should we teach the teachers? Identifying the learning priorities of clinical supervisors. *Adv Health Sci Educ*. 2018;23(1):29-41.
17. Beck DallaghanGL, AlerteAM, RyanMS, et al. Recruiting and retaining community-based preceptors: a multicenter qualitative action study of pediatric preceptors. *Acad Med*. 2017;92(8):1168-1174.
18. GrazianoSC, McKenzieML, AbbottJF, et al. Barriers and strategies to engaging our community-based preceptors. *Teach Learn Med*. 2018;30(4):444-450.
19. HartfordW, NimmonL, StenforsT. Frontline learning of medical teaching: 'you pick up as you go through work and practice.' *BMC Med Educ*. 2017;17(1):171.
20. DixonKA, CottonA, MoroneyR, SalamonsonY. The experience of sessional teachers in nursing: a qualitative study. *Nurs Educ Today*. 2015;35(11):1097-1101.
21. ElderSJ, SvobodaG, RyanLA, FitzgeraldK. Work factors of importance to adjunct nursing faculty. *J Nurs Educ*. 2016;55(5):245-251.
22. DrowosJ, BakerS, HarrisonSL, MinorS, ChessmanAW, BakerD. Faculty development for medical school community-based faculty: a Council of Academic Family Medicine Educational Research Alliance study exploring institutional requirements and challenges. *Acad Med*. 2017;92(8):1175-1180.
23. LinzerM, WardeC, AlexanderRW, et al. Part-time careers in academic internal medicine: a report from the association of specialty professors part-time careers task force on behalf of the Alliance for Academic Internal Medicine. *Acad Med*. 2009;84(10):1395-1400.
24. BuntonSA, CorriceAM. *An Exploration of Part-time U.S. Medical School Faculty: A Thematic Overview*. Washington, DC: Association of American Medical Colleges; 2011. Contract No.: 9.
25. BunnissS, KellyDR. Research paradigms in medical education research. *Med Educ*. 2010;44(4):358-366.
26. StalmeijerRE, McNaughtonN, Van MookWNKA. Using focus groups in medical education research: AMEE Guide No. 91. *Med Teach*. 2014;36(11):923-939.
27. BraunV, ClarkeV. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3:77-101.
28. EloS, KyngasH. The qualitative content analysis process. *J Adv Nurs*. 2008;62(1):107-115.
29. Vidarsdottir, U. *European Higher Education Area: Iceland 2012-2015*. http://ehea.info/page-iceland. Accessed December 20, 2019.
30. DietzTE. *Human Resources Information [email]*. Reykjavik, Iceland; 2017.
31. University of Iceland. *Strategy of the University of Iceland 2016–21*. Reykjavik, Iceland: University of Iceland; 2016.
32. GuestG, NameyE, McKennaK. How many focus groups are enough? Building an evidence base for nonprobability sample sizes. *Field Methods*. 2017;29(1):3-22.
33. CarterN, Bryant-LukosiusD, DiCensoA, BlytheJ, NevilleAJ. The use of triangulation in qualitative research. *Oncol Nurs Forum*. 2014;41(5):545-547.
34. SorinolaO, ThistlethwaiteJ, DaviesD, PeileE. Realist evaluation of faculty development for medical educators: what works for whom and why in the long-term. *Med Teach*. 2017;39(4):422-429.
35. BondN. Developing a faculty learning community for non-tenure track professors. *Int J Higher Educ*. 2015;4(4):1-12.
36. Van denBergBAM, BakkerAB, tenCateTJ. Key factors in work engagement and job motivation of teaching faculty at a university medical centre. *Perspect Med Educ*. 2013;2:264-275.
37. JolleyMR, CrossE, BryantM. A critical challenge: the engagement and assessment of contingent, part-time adjunct faculty professors in United States community colleges. *Commun Coll J Res Pract*. 2014;38(2–3):218-230.

38. BarberJRG, ParkSE, JensenK, et al. Facilitators and barriers to teaching undergraduate medical students in general practice. *Med Educ*. 2019;53(8):778-787.
39. BigbeeJL, RainwaterJ, ButaniL. Use of a needs assessment in the development of an interprofessional faculty development program. *Nurse Educ*. 2016;41(6):324-327.
40. BuchK, McCulloughH, TamberelliL. Understanding and responding to the unique needs and challenges facing adjunct faculty: a longitudinal study. *Int J Educ Res*. 2017;16(10):27-40.
41. McCulloughB, MartonGE, RamnananCJ. How can clinician-educator training programs be optimized to match clinician motivations and concerns?*Adv Med Educ Pract*. 2015;6:45-54.
42. SantistebanL, EguesAL. Cultivating adjunct faculty: strategies beyond orientation. *Nursing Forum*. 2014;49(3):152-158.
43. MurrayC, StanleyM, WrightS. The transition from clinician to academic in nursing and allied health: a qualitative meta-analysis. *Nurs Educ Today*. 2014;34(3):389-395.
44. BrowneJ, WebbK, BullockA. Making the leap to medical education: a qualitative study of medical educators' experiences. *Med Educ*. 2017;52(2):216-226.
45. VanLankveldT, SchoonenboomJ, VolmanM, CroisetG, BeishuizenJ. Developing a teacher identity in the university context: a systematic review of the literature. *High Educ Res Dev*. 2017;36(2):325-342.

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APPENDIX 1

INTERVIEW GUIDE

1. Explain consent form. Have all participants sign and start both recording devices.
2. Greet them, introduce myself. They introduce themselves and state whether they teach in the classroom, clinic or both. If they teach in the classroom, I ask them to describe how much.
3. Present results: I introduce all results of the survey first, then we go into discussions afterwards. Discuss in the context that the university wants to increase support of sessionals.
   a. Discuss similarities with respect to motivation concepts: sessionals are similar to tenured faculty members with respect to
      i. they enjoy teaching
      ii. they want to do their best at teaching
      iii. they feel that teaching is important for a variety of reasons
      iv. they are open to improve as a teacher
   b. Discuss differences seen on survey: sessionals are different from tenured faculty members with respect to
      i. they are harder to find
      ii. they feel less connected to the department or university
      iii. they desire more recognition from the department or field when they try new teaching methods; perhaps they feel they are not noticed or do not receive enough feedback
      iv. they would have liked to have been better prepared before starting to teach and they are also more positive towards the importance of improving their teaching
      v. they participate less in courses to improve their teaching
      vi. they are more interested in digital formats
4. Discussion: Do you agree with these results?
   a. Is it hard to find you? Do you have e-mails? Are there lists of sessional teachers in your departments?
   b. Do you feel connected to your university department? Are you part of a group?
   c. Do you think you receive enough appreciation for your teaching efforts? Do you receive sufficient feedback on your teaching?
   d. Would you have liked more preparation for your teaching before you started?
   e. What obstacles do you face to participating in courses?
   f. Are you interested in digital formats for courses?
5. Discussion: Support
   a. Do clinical sessionals have different needs to classroom sessionals? What are the differences?
   b. How is it possible to support you as a sessional teacher in this context? What do you think?
   c. How is it possible to strengthen you as a sessional teacher? How is it possible to strengthen your relationship with the department?
   d. Are there any obstacles that you face? (Note: allow discussion of low pay but do not spend much time on this.) How could these be addressed by the department and university?
6. Thank you and close.

Paper IV

Identifying educators' skill needs and explaining factors affecting attitudes towards their responsibility for and application of motivational principles: a mixed methods study

Short title: Motivational strategies

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Key words: attitudes, contextual factors, faculty development, improving teaching, motivation, choices, feedback, skill needs, motivating students

Abstract

Introduction: Educators' skill needs and attitudes towards motivational principles are not well-represented in the literature and may be affected by contextual factors. The purpose of this study was to identify educators' skill needs, and to identify and explain educators' attitudes about their responsibilities for and application of motivational principles.

Methods: We used a sequential explanatory mixed methods design. Faculty members (n = 272; 33% response rate) answered a needs assessment survey that included statements about their responsibility for and application of motivational principles. Faculty (n = 11) in two focus groups interpreted the survey results.

Results: Educators rated "reflective practice" and "motivating learners" as their highest skill needs for development. As for the motivational principles, they felt more responsible for explaining the usefulness of the content, generating interest in the material, and caring about students, but less responsible for offering choices and providing feedback/organization to foster students' success. Focus group participants identified various barriers to improving teaching related to offering choices and providing feedback, including: their personal fears of incompetence, lack of knowledge about helpful technologies, lack of time, the lack of students' skills, the inability of students to give adequate feedback to their peers, and large classes. Participants identified providing mentors, assistant teachers, and success stories as ways to improve their teaching.

Conclusions: We explained the "why" behind educators' lack of feeling responsible for motivational principles by identifying various contextual factors affecting their attitudes. We present a variety of ideas to address these factors and improve teaching.

Introduction

The educator's task is "to provide an environment and the resources in which each learner can flourish" (Taylor and Hamdy 2013, p. e1561). However, health science educators may lack the knowledge and skills to motivate students and promote learning, as many receive little or no training in pedagogy (McLean et al. 2008; Snook et al. 2019). A university looking to improve their teaching may turn to their Center for Teaching and Learning (CTL) to provide faculty development (FD) interventions to address this lack of knowledge and skills; however, the CTL staff may not know the educators and their needs. If, for example, the goal is to improve an educator's ability to motivate students, what must faculty developers know about the educators and their teaching context before designing a FD intervention?

First, these interventions should be based on identified skill needs of educators. Sorinola et al. (2017, p. 426) concludes that the "relevance and alignment of the FD to the needs of medical educators is the key contextual factor for motivation (for FD) in the long-term." In their study, the authors theorize that in the context of FD, aligned and relevant to educators skill needs, educators are motivated to learn the skills necessary to improve. This then leads to the outcome of improved educator competence as shown by improvement in instructional skills and changes in teaching approach (Sorinola et al. 2017). Therefore, faculty developers must know if educators see motivating students as an important skill need if that is the goal of the FD intervention.

In the same study, Sorinola et al. (2017) theorize that faculty will engage in FD that appeals to their values, leading to improved non-content-related educator confidence and empowerment. Steinert et al. (2016) also recognize the importance of educators' values and motivations in a systematic review of the characteristics of faculty development interventions in

the health sciences. The authors suggest that FD interventions be re-conceptualized to consider the values and motivations of educators. This includes opportunities for renewal and reflection on personal and professional attitudes and practices (Steinert et al. 2016). Therefore, faculty developers must not only know if educators see motivating students as an important skill need but, second, also know what their attitudes are towards their responsibilities to use motivational principles.

Third, researchers have increasingly pointed out that FD should not just focus on the individual educator but consider the contextual and organizational elements that affect the educator, and, therefore, their teaching. The effectiveness of FD interventions depends on FD developers' understanding of these elements. For example, negative educator attitudes towards their teaching responsibilities, possibly caused by both personal and contextual factors, can be barriers to effective teaching and learning (DaRosa et al. 2011). O'Sullivan and Irby (2011) suggest that FD is complex and that the health sciences can learn from related fields, like teacher education, quality improvement, and workplace learning. The authors suggest consideration of the positive and negative effects of the community created among FD program participants as well as the teaching practice communities in both the classroom and clinic. Jolly (2014) points out the importance of finding out what contextual factors foster or impede educator growth when trying to bring about organizational change. Curricular, cultural, environmental, and financial barriers to effective teaching can also be identified and addressed with faculty developers providing solutions within the learning communities and organizations (DaRosa et al. 2011). Therefore, the impact of external factors (contextual and organizational) on personal values, motivations, and skill needs should be considered when designing FD interventions (Steinert 2017). For example, if a program to help educators incorporate motivation principles is

developed, faculty developers should consider the contexts that affect educators' beliefs, attitudes, and motivation towards the use of such principles.

Motivation science has seen increased interest in health science education because of its obvious impact on learning (Cook and Artino Jr 2016). There are numerous motivational theories and principles (e.g., self-determination theory [SDT], attribution theory, self-regulation, and expectancy-value theory). Although each theory explains certain aspects of motivation, most theories do not attempt to explain all aspects of people's motivation in the learning environment (Cook and Artino Jr 2016). However, one model, the MUSIC Model of Motivation (Jones 2009; Jones 2018), (henceforth referred to as the MUSIC Model) was designed to help instructors integrate the motivation principles from many different motivation theories. The MUSIC Model is based on a thorough analysis, evaluation, and synthesis of multiple motivation theories and research studies. MUSIC is an acronym for the five principles of the model (*eMpowerment*, *Usefulness*, *Success*, *Interest*, and *Caring*) that lead to students' motivation and engagement in academic settings:

> "the instructor needs to ensure that students: (1) feel e**M**powered by having the ability to make decisions about some aspects of their learning, (2) understand why what they are learning is **U**seful for their short- or long-term goals, (3) believe that they can **S**ucceed if they put forth the effort required, (4) are **I**nterested in the content and instructional activities, and (5) believe that others in the learning environment, such as the instructor and other students, **C**are about their learning and about them as a person" (Jones 2018, p. 9).

Given that motivation is integral to student learning (Cook and Artino Jr 2016), it is important to understand educators' attitudes towards motivational principles. We would argue that we need to better assess educators' skill needs and attitudes towards application of motivational principles, while noting the contextual and organizational factors that shape them.

The goal of our study was to investigate university health science educators´ skill needs as well as their attitudes towards and application of the five motivational principles from the

MUSIC Model. Our second goal was to examine and explain the contextual factors that affect educators' attitudes towards and application of motivational principles in their instruction. Both goals were assessed within the context of a university working to improve teaching by increasing support to FD.

The research questions were:

1) What are the highest rated skill needs of health science educators? How do these skill needs relate to motivation?

2) To what extent do educators believe that applying the five motivational principles from the MUSIC Model is a part of their teaching responsibility and to what extent have they done so within the last year?

3) If educators feel less responsible for the application of certain motivational principles from the MUSIC Model, what contextual factors support or constrain educators´ application of these "less responsible" principles? How might these factors explain educators´ attitudes towards their responsibility and application of "less responsible" motivational principles?

Methods

Setting, Population, and Context

This study took place at the Health Sciences School at the University of Iceland (HSS). Iceland's health system is a small, state-centered, publicly funded system with universal coverage, and the life expectancy is higher than the European average (Sigurgeirsdottir et al. 2014). The educational system is modeled after programs in the Nordic countries and Europe and

is in agreement with the Bologna Process. All students in the health sciences have had 13-14 years of education prior to beginning their health science programs (Nordic National Recognition Information Centres 2019). Health science programs are between 3 to 6 years long in full-time study, ending with a professional degree and certification to practice as a healthcare professional (Nordic National Recognition Information Centres 2019). Upon graduation, medical students score similar or higher than students from the USA on the Comprehensive Clinical Skills Examination (Sifsdottir 2019).

HSS consists of six faculty departments: nursing, pharmacy, food science and nutrition, psychology, odontology, and medicine (which includes physical therapy, biomedical sciences and radiology). Tenured faculty have both teaching and research responsibilities, usually have a PhD degree, and have oversight over courses that involve sessional/adjunct faculty. Of the 212 tenured faculty at HSS in 2016, 118 (56%) were with medicine, 31 (15%) were with nursing, 20 (9%) were with odontology, and the remaining were evenly divided among the remaining faculties (University of Iceland 2016a). Of the 212 tenured faculty, 45% were women and no information was available regarding average age (University of Iceland 2016a). Sessional faculty are most often clinicians who teach students directly in the classroom and/or clinic. There were approximately 1000 sessional faculty associated with teaching through HSS (Dietz 2017). No information was available about sessional faculty distribution within faculties, gender or average age. There is a generalized pedagogical certificate program offered through the CTL but participation in FD is voluntary for educators. The university's current goals include increased support of the CTL in an effort to improve the quality of teaching (University of Iceland 2016b). FD for HSS is provided by the university's CTL and specifically by a faculty developer in a 70% position.

Ethics and Design

The National BioEthics Committee was informed about both the quantitative and qualitative aspects of the project and indicated there was no need for their approval given the nature of the data to be collected. We announced the project and indicated our intent to seek an informed participant consent for both parts of the study to the Icelandic National Data Protection Authority that publicized the project as per Icelandic regulations. The study was part of a doctoral project approved by the HSS. The researchers had no position of authority over the participants and all participation was voluntary in both phases of the project.

We utilized an explanatory sequential mixed methods design (Figure 1; Creswell and Plano Clark 2011). Mixed methods are suggested as a way to explain the 'why and how' in FD research. (Creswell and Plano Clark 2011; Steinert 2017). Quantitative results from our survey guided the questions utilized in our focus groups, which were designed to provide a deeper explanation of our quantitative results.

[Insert Figure 1]

Quantitative Data

Participants and Procedure

All tenured faculty email addresses were available through the university website. Despite repeated efforts to obtain information on the 1000+ sessional faculty, we were only able to gather email addresses for 651 sessional faculty. In total, 863 faculty member email addresses were utilized to send out the survey (20% tenured, 80% sessional).

For the pilot study, we sent invitations to approximately 400 email addresses in October 2017. A high number of participants was required in the pilot to validate another part of the study (results not reported in this paper). A month later, for the main study, we invited the rest of the educators and the ones who had not responded to the pilot study invitation. Both pilot study and main study participants were recruited by first sending an invitation email followed by 3 reminder emails. For both the pilot and main study, information about the study and invitations to participate were emailed with a code specific to that email address and a link to the online survey. The coding was done for three purposes: to be able to send reminder emails, to distribute participation incentives (a $20 gift card), and for purposive sampling in the qualitative phase of the study. Only the primary researcher had access to the codes and the codes were discarded after use and were not part of analysis. It was explained to the participants in the invitation that their voluntary participation would serve as informed consent.

Survey Development

Skill needs

The purpose of the survey was to collect responses from faculty related to their skill needs, their perceptions of their responsibilities in motivating their students, and their application of motivational principles over the past year. To select survey items related to their skill needs, we performed a literature review of needs surveys to gather a broad range of items. Participants rated the needs items on a 5-point Likert scale (1 = “no need”, 2 = “very little need”, 3 = “little need”, 4 = “some need”, 5 = “great need”, and “not applicable” [no weight was assigned to this option]).

Using the MUSIC Model to assess educator attitudes

The MUSIC Model provides strategies that educators can use to increase students' motivation, engagement and learning, by using a multidimensional approach that focuses educators on the five MUSIC principles (Jones 2009; Jones 2018). Researchers have also used the MUSIC Model of Academic Motivation Inventory (Jones et al. 2017), to measure students´ perception of the MUSIC principles in the teaching context (Jones 2018). The MUSIC Model has been researched and the accompanying MUSIC Inventory has been validated for use with various student age groups, subject areas, cultures, and languages (Jones and Skaggs 2016; Schram and Jones 2016; Jones et al. 2017).

To assess faculty perceptions of their responsibilities in motivating students, we included five statements on our survey, one that represented each of the five motivation principles in the MUSIC model (i.e., eMpowerment, Usefulness, Success, Interest, Caring; Jones 2009). The structure and word selection are based on the items in the student version of the MUSIC Inventory. The educators were asked about whether they agreed that their responsibility as an educator was to: (1) offer students choices in some aspects of their learning (eMpowerment); (2) explain how the learning process or subject material is useful to student goals (Usefulness); (3) provide feedback and organization to ensure students' perception of success (Success); (4) generate (trigger) interest in the subject (Interest); and (5) communicate caring and respect for students (and their goals) (Caring).We also developed five questions that asked participants to rate how often they had applied the motivating principles in their teaching within the last year. All of these items were rated on a 6-point Likert scale (1 = "strongly disagree", 2 = "disagree", 3 = "somewhat disagree", 4 = "somewhat agree", 5 = "agree", 6 = "strongly agree", or "choose not to answer" [no weight]). All items included in the questionnaire are listed in Table 1.

[Insert Table 1]

For the adaptation of the survey to Icelandic, we utilized Villagran and Lucke (2005) guidelines for cross-cultural adaptation of surveys, as well as the Icelandic student version of the MUSIC Model of Academic Motivation Inventory (Schram and Jones 2016).

Quantitative Data Analysis

Both single participant testing with feedback and pilot testing (n = 80) identified no single-item measures that were problematic due to the translation process as answers were consistent and according to expectations. Therefore, the pilot data was added to main study data (n = 192) for full analysis (n = 272). We combined "no need," "very little need," and "little need" responses and compared the numbers and percentages to the combined responses for "some need" and "much need" to determine highest rated needs. To determine differences in responses to both responsibility and application statements for motivation principles, we provided descriptive statistics reporting the percent of participants who agreed or strongly agreed, as we felt this was evidence of good support for the principle.

Qualitative Data

Research Design and Reflexivity

We utilized a critical theory research paradigm as the reality of being a health sciences educator is affected by competing interests. The research was designed so that the voice of the educator could be heard and utilized to make changes for the better (Bunniss and Kelly 2010). We chose an inductive thematic analysis approach with open coding, creating themes to identify, analyze and report patterns within data (Braun and Clarke 2006; Elo and Kyngas 2008). The facilitator of the groups was experienced in leading focus groups, was associated with another School within the university, and was unknown to our focus group participants. The two primary

researchers (AGS and ABS) served as assistants/observers, have backgrounds in faculty development, and were generally not known by our focus group participants. AGS was primarily responsible for coding and determining themes and has not published qualitative work previously. ABS has experience in qualitative data collection and analysis, and has published mixed methods research (Schram 2014; Chittum et al. 2017). She provided guidance and confirmation of codes and themes.

Focus Group Selection and Development of Questions

Our quantitative data identified three motivational principles for which educators felt strongly responsible and two principles for which educators felt less responsible. Within the convenience sample of those that answered our survey, we identified educators who could address the issues documented in the quantitative results by examining their survey responses. We then utilized the email-specific codes to purposefully identify email addresses of possible participants. We invited educators via email to participate in the focus groups. We chose focus groups as this allowed us to question them about the overall survey responses and see how they interacted together over the material (Stalmeijer et al. 2014). The focus group participants signed consent forms, acknowledging their voluntary participation and that the proceedings would be audio-recorded and de-personalized before being presented in any form.

The goal of the developed interview guide was to gain a better understanding of the survey responses. The facilitator introduced the results from the quantitative phase of the study and utilized questions to help the participants interpret the results. She explored the personal and contextual factors that explained why educators felt less responsible for some motivational principles. The facilitator was conscientious to make sure that all participants had an opportunity to express their opinions and thoughts. The interview guide is available in the appendix.

Focus Group Analysis

The audio recordings were transcribed with inclusion of vocal inflections (e.g., hesitations, silence, laughter) by a professional service. The primary author (AGS) then utilized thematic analysis to code the responses and determined when saturation was achieved (no new themes identified). She then identified major codes and themes (Braun and Clarke 2006), which were verified by ABS who also had access to the transcriptions. Together, AGS and ABS identified representative quotations for each of the themes and utilized an independent bilingual expert to translate them from Icelandic to English. We present these quotations in the *Results* section in quotations, along with added words for interpretation in parentheses and inflections with italics in parentheses.

Results

Quantitative Results

Demographics

There was an overall response rate of 32% (272/863) for the survey. In Table 2, we provide a comparison of the total number and distribution of tenured faculty (Haskoli Islands 2016) with our sample. Our sample was similar in distribution within faculties but had proportionately more females than the reported tenured faculty distribution.

[Insert Table 2]

Of our sample, 61% were sessional faculty and 29% were tenured faculty. Eighteen percent of the sample participants were under the age of 40 (“millennials”), 32% were between the ages of 40 and 52 (“gen x”), and 37% were 53 years old or older (“baby boomers”). Because our

demographic information came at the end of our study, there were participants who did not complete the demographic information: 10% did not indicate which faculty they associated with, 15% did not indicate their gender, 10% did not indicate their teacher type, and 13% did not indicate their age group. However, their data was included in the analysis if they had completed the motivational principle statements. We were unable to compare the total population of sessional and tenured faculty (n = 863) to our sample due to the unknown information about our population of sessional faculty.

Top skill needs and attitudes towards responsibilities and use of motivational principles

The top six skill needs identified by educators on the survey, all with over 70% of educators indicating great or some need, are presented in Table 3. "Developing a reflective approach to teaching" and "motivating today's learners" were the highest rated skill needs, followed by providing feedback and designing effective assessments.

[Insert Table 3]

Participants' attitudes about their responsibilities for implementing each motivational strategy and about their actual application of each motivational principle is provided in Figure 2. More educators rated their responsibilities for applying principles related to *Usefulness*, *Interest*, and *Caring* higher (over 92% agreement/strong agreement) than they did for *Success* (70%) and *eMpowerment* (51%) (see left side of Figure 2). Consistent with these findings, fewer educators actually reported offering choices (*eMpowerment*) or providing good organization or feedback to foster students' success (*Success*) (see right side of Figure 2).

[Insert Figure 2]

Qualitative Results

Demographics

Within our sample of convenience, we based our purposeful selection of participants for the focus groups on a specific pattern in their survey responses: those who reported less agreement with *eMpowerment* and *Success* responsibility statements (rated "somewhat agree" or lower) when compared to *Usefulness*, *Interest* and *Caring* statements (rated "agree" or "strongly agree") (n = 140). We selected participants in this manner because we wanted participants who would be representative of the findings shown in Figure 2. From the email responses to our invitation, two groups were formed (Group 1, $n = 6$; Group 2, $n = 5$) that mixed educators from different disciplines (medicine, $n = 4$; nursing, $n = 2$; physical therapy, $n = 4$; and nutrition, $n = 1$), type (8 tenure-track, 3 sessional/adjunct), gender (3 males, 8 females), and age ($1 < 40$ years, 6 between 40 and 52 years, $4 \geq 53$ years).

Focus group results

Once our focus groups were assembled, the facilitator presented the results in Figure 2 and asked the participants to give their interpretation of it. Overall, participants were pleased that the responsibility for *Caring* statement was rated high, "I really like this *Caring* result" (focus group [FG] 2, respondent [R] 2) and felt that they alone were responsible for caring for their students, "no one else can do that so that answer seemed appropriate" (FG2, R2). They thought it was important to explain to students why they assigned projects or put students into groups, "to explain why they are doing a project, why they are working together as group, you (need) to explain *(with emphasis)* everything" (FG1, R1), which is consistent with the *Usefulness* component of the MUSIC Model. However, they hesitated in accepting full responsibility for offering choices (*eMpowerment*) and helping students believe that they could be successful through feedback and organization (*Success*), "because I cannot be quite responsible for these

myself, although I wanted to do it" (FG2, R2). With further discussion, the focus group participants identified various factors that they felt were not under their complete control and that limited them from taking full responsibility for offering choices and providing feedback.

Utilizing thematic analysis, we grouped the responses into the following themes related to offering choices.

Choices engage students – The participants agreed that offering students choices is good for learning as students were more engaged in their learning when they could choose the material that they studied, "material that they are interested in … their own material, they are excited about it, I don´t decide what they should do, it works better that way" (FG1, R5).

Mentorship and success stories could help implementation – The participants enjoyed hearing stories of how other participants in the group had been able to offer choices to students. One participant (FG1, R2) shared a positive story of being a student in a class that offered choices while another participant shared how problem-based learning makes choices possible (FG2, R5). It seemed to cause the other focus group participants to reflect on their own teaching, "I need to learn that" (FG2, R4). Participants felt that having another educator to help them through the process of offering choices and improving teaching was very necessary, "to get somebody to be with me, to guide me, someone who knows what to do and has done this before" (FG1, R1).

Personal fears limit their ability to change – Participants acknowledged that they tended to teach in a lecture format as it was the way they were taught, "we are not accustomed to (other teaching methods), we were all taught that someone came in, he came, and he left, …. and that was our university education" (FG1, R2). They were also worried about their own abilities to meet the needs of today's learners, "then we came back (as educators) and then the demands were

different, different thoughts, and it just takes time" (FG2, R1). Some participants also emphasized that they just needed to decide and commit to changing and improving their teaching, "just make the decision" (FG2, R1).

Students' lack of skills is a constraint – When asked for reasons why they hesitate to offer students choices, participants mentioned a lack of skills they had assumed students would have mastered as university students. Participants mentioned concerns over students' problem solving skills, "they are not as able, as I would have thought, to search, find solutions" (FG2, R2) and their ability to think critically, "that they really learn to gather knowledge through critical thinking" (FG1, R1) and see beyond superficial reasoning, "can you find out, can you uncover the reasons behind it?" (FG2, R1). When using flipped teaching, the participants seemed discouraged by mixed results, noting that students with passive attitudes and a lack of organizational skills found it difficult to prepare and struggled the most with format, "it was 50-50, there were half of them that found flipped teaching to be awesome, but those who could not be bothered to prepare themselves found it terribly *(with emphasis)* difficult (FG2, R1).

Institutional issues limit their ability to offer choices – Large, basic science courses were repeatedly mentioned by participants in both focus groups as challenging due to logistics, and all participants saw more opportunities for choices as students progressed in their studies and class sizes diminished. A few participants complained that some classes had a fixed amount of material to cover in a fixed time period, making it difficult to offer choices, "some of the courses are very much, set in stone (rigid in form and organization)" (FG1, R6).

Utilizing thematic analysis, we grouped responses into the following themes related to students' beliefs about their *Success*, which primarily focused on factors that affect educators' ability to provide constructive feedback (formative and summative).

Providing feedback was seen as the educator's responsibility – Participants reported that providing feedback was their responsibility, "(I am) absolutely responsible for that (providing feedback) but the framework does not allow for it" (FG1, R4).

Institutional factors could help educators provide more or better feedback – The need for more time to give feedback was mentioned frequently by participants, "the feedback it is just completely not any more complicated than that, just a horrible lack of time" (FG2, R2), especially for participants who provided feedback and then had students submit the assignment a second time, "I know that the students get much *(with emphasis)* more out of this when I provide feedback and they can turn it in again, but I just can't always do that" (FG2, R4). The participants also identified smaller classes "10-15 people – giving feedback has gone very well" (FG1, R3), and an automatic provision of assistant educators for large classes as factors that support giving feedback,

> facilitator: You mean that assistance with a large class should be automatic?
> participant: If you want good feedback, that is what it takes. (FG2, R1)

Educators identified some limitations of using peer feedback in group work – Some participants were frustrated that peer feedback was often not successful as students were not willing to criticize their peers.

> Some just say (that) everybody did fine, and it´s all good, if it´s just because it is obviously difficult to say that the friend is… not doing his part?…but then there are others who are completely not shy, so it varies a bit. (FG2, R5)

A few participants talked about using peer feedback successfully in group work and other participants were encouraged by hearing stories of what other participants had implemented. One such story was a participant who described a situation in which three 3-person groups exchanged their written projects and were required to respond in writing with what they thought was good

and what could have been done better. The project and student comments were then turned into the participant for grading and comments. The participant remarked that the students' comments were often insightful and, when asked how the students responded to the assignment, the participant responded, "they are very *(with emphasis)* willing, they find it extremely enjoyable" (FG2, R5).

Technology could be used to improve feedback – A participant shared how she used technology (e.g., Socrative, SurveyMonkey) with large classes to receive and provide feedback to students on how they were progressing (FG1, R3). However, many participants seemed unfamiliar with these technologies and were encouraged to hear stories of how technologies were being used to assist with providing feedback.

Discussion

Within the context of a university working to improve teaching by supporting FD, we established educators' top perceived skill needs for teaching development, including "motivating today's learners", and demonstrated that educators perceived varying amounts of responsibility for applying motivational principles. Thematic analysis of the focus groups' discussions grouped results into personal, contextual, and organizational factors that educators believed supported or constrained their ability to offer choices and provide feedback to students; and thus, led to insights as to why the educators perceived that these motivational principles were not completely their responsibility. From these insights, implications and suggestions for improvement can be made for FD and institutions.

Educators' top skill needs are reflective practice and motivating today's learner

Our educators rated "self-assessing teaching skills, developing a reflective approach to teaching" and "motivating today's learner" a higher skill need than common high-ranking skill needs of educators identified on previous health science surveys (e.g., providing feedback, designing assessments) (Behar-Horenstein et al. 2014; Schönwetter et al. 2015; Bigbee et al. 2016). Reflection is suggested as a strategy for all educators to better understand and improve their teaching practices (Berman 2015), and reflection is part of the design process when redesigning instruction to motivate learners (Jones 2018). It is encouraging to hear our educators are interested in learning about two skills so central to improving teaching. Although asking educators if they need help with motivating students is uncommon in needs assessments, one study conducted in a dental school (Schönwetter et al. 2015) found that it was the second highest need identified by their faculty. In fact, Pelaccia and Viau (2017) suggest that the field of medical education has recently shown increased interest in the field of motivation. The authors assert that educators have assumed that their learners are motivated by their highly specific training but are recognizing that some students feel powerless and have lost interest in their studies. As this seems to be a universal issue, our findings suggest that further study of student motivation in health science schools is needed, possibly using the MUSIC Model as a guide for increasing student motivation.

Educators agree with their responsibilities related to Interest, Caring, and Usefulness

An educator who generates *Interest* motivates by finding ways to attract student attention and arouse student emotions. A *Caring* educator motivates by finding ways to show students that they care about students' learning and well-being. An educator who explains the *Usefulness* of learning the content and skills motivates by connecting this learning to students' goals and future (Jones 2009; Jones and Skaggs 2016). On the survey, educators agreed these principles were

their responsibility and, in our focus groups, participants took full responsibility for communicating respect and *Caring* to their students and acknowledged that explaining the *Usefulness* of knowledge and skills is important. The Association for Medical Education in Europe (AMEE) Guide on motivation in medical education (Pelaccia and Viau 2017) notes the importance of value (based on *Interest* and *Usefulness*), perceived self-efficacy (perception of ability to experience *Success*), and perception of controllability (*eMpowerment*) of an educational activity. However, *Caring* and respect for students are not explicitly highlighted in the Guide. Given that educators' caring for students may be overlooked, our findings suggest that the study of caring as a motivating factor is an area that could be more explicitly explored in health science research.

Educators thought it was important to offer choices but lacked confidence in their ability to do so

Educators who *eMpower* their students motivate by giving students some control over their learning environment (Jones 2018). Offering choices is well-established as a strategy of autonomous learning and is a central component in control, self-determination theory (need for autonomy), and interest theories (Skinner 1996; Hidi and Renniger 2006; Kusurkar et al. 2011). Examples of strategies that educators can use to give students choices include allowing choice of assignments, assignment topic, and assignment format, as well as allowing students to find resources, contribute to course decisions, and lead instruction (Jones 2018).

While educators in our survey reported lower levels of support for offering choices as an educator responsibility, our focus group participants agreed that offering choices is engaging for students but identified factors that undermined their ability to do so. For example, the participants expressed that they felt more comfortable teaching the same way they were taught (i.e., in lecture format), and used this as a reason for why they did not apply *eMpowerment*

principles like offering choices. Oleson and Hora (2014) also found that educators' practices were impacted by what was modeled to them in the past, suggesting a FD need among educators to challenge these established teaching practices with pedagogical research. Currently, HSS does not require educators to participate in any pedagogical courses prior to beginning to teach; however, 60% of tenured faculty and 71% of sessional faculty in this same sample desired more pedagogy prior to beginning to teach (Snook et al. 2019). We argue that requiring pedagogical courses prior to teaching might help educators to become familiar with and more confident using diverse teaching methods, including those that offer choices. Without preparation for the role of teaching through FD, DaRosa et al. (2011) concluded that educators will lack the confidence to use unfamiliar teaching techniques, which may include *eMpowerment* strategies.

If an educator, who is already lacking confidence in their ability to offer choices, is then given a large, fixed-content introductory course to teach in lecture format, it may not be surprising to hear that they see no option to offer choices, as some of our participants reported. This can be difficult for faculty, especially sessional faculty with a limited pedagogical background (Weimer 2016) and limited relationship with the university department, as was reported for HSS by Snook et al. (2019). Institutions and departments need to consider the impact of large, fixed-content courses on educator motivation to improve and FD needs to address the specific challenges of using *eMpowerment* strategies in these types of courses.

Some educators found it difficult to meet students' needs

Some researchers suggest that educators should consider the learning preferences of health science millennials (Desy et al. 2017; Ruzycki et al. 2019) to keep up with demands of today's learner, a concern voiced by our focus group participants. However, authors of a critical review of generation theory argue that these differences are a myth that encourages stereotyping

of millennials, perpetuates power differentials between educator and student, and discourages consideration of individual differences (Jauregui et al. 2020). FD interventions may need to address this difference between educator perception and reality. Pettit et al. (2017) did find that medical students prefer a variety of teaching methods, and value choice, flexibility, efficiency, and the ability to control the pace of their learning, many issues that would be addressed by empowering students by offering choices (Jones 2018). Therefore, an application that would address both of these concerns (educators' lack of confidence in offering choices and modern-day student needs) would be to identify an *eMpowerment* strategy that educators value and have interest in. It could then be followed by a participatory workshop that included education on generation theory and encouraged reflective practice to improve confidence and competence in teaching with an *eMpowerment* strategy.

Educators needed stories and mentors to change the way they teach

Sharing stories appears to improve an individual educator's reflection on teaching (Jalongo 1995). When our focus group participants heard other participant stories, they also seemed to reflect on their own teaching, suggesting a possible FD intervention. It was clear that our participants wanted help from trained mentors/peers, which is something that has been shown to help in faculty development (Sood et al. 2016). Due to the difficulties our participants noted about teaching large classes and having fixed material limiting choices, trained mentors may be helpful in these circumstances, especially if inexperienced faculty are responsible for the teaching. A mentoring program is available to HSS faculty, but utilization may suffer partially due to a lack of educator awareness of the service.

Educators concerned that students lack generic skills and take passive role towards learning

Critical thinking, problem solving, and reasoning skills are often labeled “generic skills” (i.e., skills that may be applied to a range of different situations) but, within the context of healthcare, these skills are seen as essential to success and achievement (Murdoch-Eaton and Whittle 2012; Pizzimenti and Axelson 2015). Other researchers have noted the concern among healthcare professions that not all learners have the necessary critical thinking skills (Pizzimenti and Axelson 2015), a similar concern voiced among our focus group participants and a reason they mentioned for not offering choices. Researchers have also questioned if these skills are being developed during their healthcare education (Kim and Jang 2015; Shirazi and Heidari 2019). We suggest assessing where and when in a students’ education they are being taught these skills and remedying any lack of training.

Students’ taking a passive role towards learning may also limit the teaching methods that educators feel comfortable using in a teaching context. Love et al. (2018) identified student passivity as an obstacle for medical educators wanting to improve their teaching, similar to what our participants experienced when using flipped teaching. We argue that passive students should be gradually introduced to more active teaching techniques. A possible idea within health sciences teaching would be to gradually implement student-centered learning, (e.g., start with lectures, then add case-based learning [CBL] to lecture, finish with CBL alone) as this was found to be more effective than CBL alone in improving autonomous motivation and achievement (Baeten et al. 2012). This format would move students towards more independent learning and address our educators’ fifth-highest identified skill need of “encouraging students to be more self-directed”. Offering choices is part of an autonomy-supportive learning climate (Kusurkar et al. 2011). However, Sierens et al. (2009) demonstrated that structure (in the form of help, instructions, and clear expectations) was required if the goal was to predict self-regulated

learning. Jones (2018) also mentions this when discussing the impact of offering choices. He points out that, without appropriate educator direction and support, students' perceptions of their own success can drop, frustrating the student and possibly reducing motivation. This would suggest that educators may need to learn how to support self-regulated, autonomous learning.

Educators thought it was important to support a student's belief they could succeed

An educator motivates a student by offering a challenging course with clear structure, providing feedback about students' progress, and the resources necessary for students to *Succeed* (Jones 2018). Constructive feedback at timely intervals is fundamental to motivational theories, as it is designed to inform students about their competence and to give them an opportunity to assess whether their learning strategies are working. Strategies for providing feedback include administering frequent graded and ungraded tests, explaining answers, providing timely feedback, using peer feedback, and requiring self-evaluations (Jones 2018). Johnson et al. (2016) identified 18 distinct elements of effective feedback in health professions education and these elements may be useful to consider.

Our educators agreed that providing feedback was important, rating it and assessments as the third and fourth highest-rated skill needs. The focus group participants also took responsibility for providing feedback. However, they identified contextual factors that limited their ability to provide feedback.

Educators reported a lack of time as a constraint on giving feedback

A lack of time to provide quality feedback and assessment is mentioned often by educators in the literature, similar to our focus group participants. A re-evaluation of the framework, which compensates teaching times and assessments based on a formula, may be

warranted. Suggestions from research in anatomy and physiology may also help educators be more efficient when providing feedback to large classes (Weston-Green and Wallace 2016). The educators in this study used a "feedback lecture'" shortly after the exam in which students discussed and explained their answers in peer groups to the 10 most difficult questions (based on graded results the students had not seen). This allowed the educators to identify and discuss misconceptions in a timely manner and the student feedback on this format was very positive. Research like this, stories, resources, and expert mentors could also help educators become more efficient and skillful at providing feedback (Hardavella et al. 2017; Love et al. 2018; Teaching and Learning Services 2018).

Educators are not sure peers are a good source of effective feedback

Peer feedback between students is often suggested as an option to lighten the educator burden of providing feedback (Pezdek 2009). Sharing stories of how peer feedback was successful was encouraging to our participants. Peer feedback also helps students develop critical thinking skills (Murdoch-Eaton and Sargeant 2012). Nofziger et al. (2010) examined medical students' recollections of peer feedback and reported that 67% of students found peer feedback helpful and 65% experienced transformations from peer feedback. The authors suggested that students need to receive training in how to give specific, constructive feedback, a suggestion our focus group participants would agree with given their mixed results with peer feedback. Newly developed interdisciplinary courses at HSS stress the importance of teamwork within groups and might be an opportunity to teach constructive peer feedback. Institutions should continue to work to develop a culture in which giving feedback is safe, including providing advice and using formative assessment (Nofziger et al. 2010). Interestingly, peer feedback appears to become

more important to personal development as students progress in their studies and see learning as more active and less passive (Murdoch-Eaton and Sargeant 2012).

Educators not knowledgeable about technologies to provide feedback

Love et al. (2018) reported that being able to use technology in teaching was identified as one of main drivers behind educators' motivation to want to improve their teaching. Our educators would agree, identifying it as their sixth highest skill need and admitting to not knowing much about technologies relevant to providing feedback. CTL courses on technology to improve feedback are available at HSS but may be underutilized due to a lack of awareness. Educators need to be made aware about relevant technologies for providing feedback and be offered FD in this skill need to develop in this area.

Implications for faculty development and institutions

The survey results indicated that "motivating students" is a high skill need at a university working to improve teaching by supporting FD. Although the survey results showed that some of the educators did not feel that offering choices and providing feedback were their responsibilities, results from the focus groups indicated otherwise and revealed personal and contextual factors that were influencing educator's accepted responsibility and adoption of these motivational principles. In Figure 3, we present an integrative summary of our research findings. In the survey (left side), we identified the highest rated needs and less-supported educator responsibilities (eMpowerment and Success). This led us to conduct focus groups in which we explored contextual reasons for the use and non-use of offering choices and providing feedback. Finally, both survey and focus group results generated ideas for improving the alignment of needs, attitudes, and personal and contextual factors that affect the use of motivational principles.

We also included suggestions for future research that were discovered during the analysis (see below).

[Insert Figure 3]

Based on the results of our study, we recommend the following to align administration and FD with educators' needs, attitudes and the contexts within they teach: (1) Universities may need to consider required pedagogical courses for new teachers; (2) Universities should assess student learning of generic skills and exposure to active teaching methods and, if needed, consider ways to incorporate the teaching of generic skills into existing classes or require students to take a course in generic skills (i.e., self-management, digital literacy, giving and receiving constructive feedback, active learning, and working in groups); (3) Universities and FD should promote successful teaching stories, increase awareness and availability of mentoring programs, and automatically provide assistant teachers for large courses; and (4) Universities may need to evaluate the framework that determines time allocated for teaching responsibilities. Among educators there needs to be heightened awareness of CTL offerings like mentoring and courses on technology. For specific FD needs, we suggest that FD at health science schools offer the following workshops to all educators: (1) how to engage in reflective practice; (2) how to motivate students (e.g., how to use the MUSIC Model); (3) how to support students' self-regulation and autonomy (to transition students to more independent learning); (4) how to provide effective feedback to students; (5) how to support effective peer feedback; and (6) more offerings on how to use technology that supports choices and feedback. These workshops should take place using participatory methods that encourage reflective practice to improve educator confidence (Sorinola et al. 2017), while reinforcing the individual needs of students (Jauregui et al. 2020).

Strengths, Limitations, and Future Research

Our study adds to the literature by investigating an important but under-researched topic: educators' attitudes towards their responsibilities for and application of motivational principles. Once we identified educators' skill needs and beliefs about their motivation responsibilities, we were able to explain our results through qualitative analysis and identify factors that constrain educators when trying to improve their teaching. Our results led to a greater understanding of the contextual factors that affect teaching attitude and practice as our qualitative results informed our quantitative results (O'Sullivan and Irby 2011; Steinert et al. 2016). This understanding helped us to align our suggestions for institutions and FD with the needs of educators, which could result in increased educator motivation to learn and teaching improvement (Sorinola et al. 2017).

A limitation of the study is that it took place at one health science school within a university working to improve teaching by increasing support of FD. Therefore, results may not be generalizable to universities with highly-developed FD for health science educators. However, many of our themes were supported by the literature and we would argue that HSS represents a fairly typical health sciences school that is trying to improve its FD and teaching. Another limitation is that we created the items based on a review of the literature. Alternatively, we could have asked the educators at this school about their needs and created questions based on their suggestions. Also, self-reported data is limiting, but our use of focus groups allowed for reflection and explanation of factors that affect these principles, giving the results more depth and transparency. Suggestions for future research include further studies on motivation in health science students (particularly examining the importance of *Caring* in the health sciences*)*, replicating these results with multiple schools to see if patterns of support for motivational

principles are universal or specific to school types or subject matter, and testing these suggested interventions for their effectiveness in improving use of these motivational principles

Conclusion

Using a sequential explanatory mixed methods design, we first established "motivating students" as a high skill need of educators and determined that educators felt less responsible for the motivational principles of eMpowerment (offering choices) and Success (providing feedback). We used focus groups to explain the "why" behind their lack of support for choices and feedback, which allowed us to identify contextual factors that were affecting their attitudes and practices. Combining our quantitative and qualitative results, we made suggestions for both institutions and FD that are aligned with educators' needs and attitudes while taking into consideration the contexts in which educators teach. Implementing these suggestions may motivate educators to learn more about motivational principles in their teaching context and have a positive impact on educator competence and student learning.

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References

Baeten M., Dochy F., Struyven K. (2012) The effects of different learning environments on students' motivation for learning and their achievement. *British Journal of Educational Psychology. 83*:484-501.
Behar-Horenstein L., Garvan C., Catalanotto F., Hudson-Vassell C. (2014) The role of needs assessment for faculty development initiatives. *The Journal of Faculty Development. 28*:75-86.
Berman A. C. (2015) Good teaching is good teaching: A narrative review for effective medical educators. *Anat Sci Educ. 8*:386-394.

Bigbee J. L., Rainwater J., Butani L. (2016) Use of a needs assessment in the development of an interprofessional faculty development program. *Nurse Educ. 41*:324-327.
Braun V., Clarke V. (2006) Using thermatic analysis in psychology. *Qualitative Research Psychology. 3*:77-101.
Bunniss S., Kelly D. R. (2010) Research paradigms in medical education research. *Medical Education. 44*:358-366.
Chittum J. R., Jones B. D., Akalin S., Schram A. B. (2017) The effects of an afterschool stem program on students' motivation and engagement. *International Journal on STEM Education. 4*:1-16.
Cook D. A., Artino Jr A. R. (2016) Motivation to learn: An overview of contemporary theories. *Medical Education. 50*:997-1014.
Creswell J. W., Plano Clark V. L. (2011). Designing and conducting mixed methods research. 2nd ed. Los Angeles, CA: Sage.
DaRosa D. A., Skeff K., Friedland J. A., Coburn M., Cox S., Pollart S., O'Connell M., Smith S. (2011) Barriers to effective teaching. *Academic Medicine. 86*:453-459.
Desy J. R., Reed D. A., Wolanskyj A. P. (2017) Milestones and millenials: A perfect pairing-competency-based medical education and the learning preferences of generation y. *Mayo Clinic Proceedings. 92*:243-250.
mDietz T. E. (2017) Human resources information [email]. Reykjavik, Iceland.
Elo S., Kyngas H. (2008) The qualitative content analysis process. *J Adv Nurs. 62*:107-115.
Hardavella G., Aamli-Gaagnat A., Saad N., Rousalova I., Sreter K. B. (2017) How to give and receive feedback effectively. *Breathe (Sheff). 13*:327-333.
Haskoli Islands. 2016. Employees. [accessed 2018 Feb]. https://www.hi.is/kynningarefni/starfsmenn.
Hidi S., Renniger K. A. (2006) The four-phase model of interest development. *Educational Psychologist. 41*.
Jalongo M. K. (1995). Teachers' stories : From personal narrative to professional insight. San Francisco :: Jossey-Bass Publishers.
Jauregui J., Watsjold B., Welsh L., Ilgen J. S., Robins L. (2020) Generational 'othering': The myth of the millennial learner. *Medical Education. 54*:60-65.
Johnson C. E., Keating J. L., Boud D. J., Dalton M., Kiegaldie D., Hay M., McGrath B., McKenzie W. A., Nair K. B., Nestel D. et al. (2016) Identifying educator behaviours for high quality verbal feedback in health professions education: Literature review and expert refinement. *BMC Med Educ. 16*:96.
Jolly B. (2014.) Faculty development for organizational change. In: Steinert Y, editor. Faculty development in the health professions. Dordrecht: Springer.
Jones B. D. (2009) Motivating students to engage in learning: The music model of academic motivation. *International Journal of Teaching and Learning in Higher Education. 21*:272-285.
Jones B. D. (2018). Motivating students by design - practical strategies for professors. 2nd ed. CreateSpace.
Jones B. D., Li M., Cruz J. M. (2017) A cross-cultural validation of the music model of academic motivation inventory: Evidence from chinese- and spanish-speaking university students. *International Journal of Educational Psychology. 6*:366-385.
Jones B. D., Skaggs G. E. (2016) Measuring students' motivation: Validity evidence for the music model of academic motivation inventory. *International Journal of Scholarship of Teaching and Learning. 10*:7.
Kusurkar R. A., Croiset G., Ten Cate T. J. (2011) Twelve tips to stimulate intrinsic motivation in students through autonomy-supportive classroom teaching derived from self-determination theory. *Med Teach. 33*:978-982.
Love L. M., Haggar F. L., McBrien S. B., Buzalko R. J., Hartman T. L., Shope R. J., Beck Dallaghan G. L. (2018) Supporting the professional identity of medical science educators: Understanding faculty motivations for quality improvement in teaching [journal article]. *Medical Science Educator. 28*:655-665.

McLean M., Cilliers F., Van Wyk J. M. (2008) Faculty development: Yesterday, today and tomorrow. *Med Teach. 30*:555-584.
Murdoch-Eaton D., Sargeant J. (2012) Maturational differences in undergraduate medical students' perceptions about feedback. *Medical Education. 46*:711-721.
Murdoch-Eaton D., Whittle J. (2012) Generic skills in medical education: Developing the tools for successful lifelong learning. *Medical Education. 46*:120-128.
Nofziger A. C., Naumburg E. H., Davis B. J., Mooney C. J., Epstein R. M. (2010) Impact of peer assessment on the professional development of medical students: A qualitative study. *Academic Medicine. 85*:140-147.
Nordic National Recognition Information Centres. 2019. The icelandic higher education system. [accessed Dec 21, 2019]. https://norric.org/nordbalt/iceland.
O'Sullivan P. S., Irby D. M. (2011) Reframing research on faculty development. *Academic Medicine. 86*:421-428.
Oleson A., Hora M. T. (2014) Teaching the way they were taught? Revisiting the sources of teaching knowledge and the role of prio experience in shaping faculty teaching practices. *Higher Education. 68*:29.
Pelaccia T., Viau R. (2017) Motivation in medical education. *Med Teach. 39*:136-140.
Pettit R. K., McCoy L., Kinney M. (2017) What millennial medical students say about flipped learning. *Advances in Medical Education and Practice. 8*:487-497.
Pezdek K. 2009. Grading student papers: Reducing faculty workload while improving feedback to students. [accessed]. https://www.psychologicalscience.org/observer/grading-student-papers-reducing-faculty-workload-while-improving-feedback-to-students.
Pizzimenti M. A., Axelson R. D. (2015) Assessing student engagement and self-regulated learning in a medical gross anatomy course. *Anat Sci Educ. 8*:104-110.
Ruzycki S. M., Desy J. R., Lachman N., Wolanskyj-Spinner A. P. (2019) Medical education for millennials: How anatomists are doing it right. *Clinical Anatomy. 32*:20-25.
Schönwetter D. J., Hamilton H., Sawatsky J. V. (2015) Exploring professional development needs of educators in the health sciences professions. *Journal of Dental Education. 79*:113-123.
Schram A. B. (2014) A mixed methods content analysis of the research literature in science education. *International Journal of Science Education. 36*:2619-2638.
Schram A. B., Jones B. D. (2016) A cross-cultural adaptation and validation of the icelandic version of the music model of academic motivation inventory. *Icelandic Journal of Education. 25*:159-181.
Sierens E., Vansteenkiste M., Goossens L., Soenens B., Dochy F. (2009) The synergistic relationship of perceived autonomy support and structure in the prediction of self-regulated learning. *British Journal of Educational Psychology. 79*:57-68.
mSifsdottir I. (2019) Question about md education[email]. Reykjavik, Iceland.
Sigurgeirsdottir S., Waagfjoreth J., Maresso A. (2014) Iceland: Health system review. *Health Syst Transit. 16*:1-184.
Skinner E. A. (1996) A guide to constructs of control. *Journal of Personality and Social Psychology. 71*:549-570.
Snook A. G., Schram A. B., Sveinsson T., Jones B. D. (2019) Needs, motivations, and identification with teaching: A comparative study of temporary part-time and tenure-track health science faculty in iceland. *BMC Medical Education. 19*:349.
Sood A., Tigges B., Helitzer D. (2016) Mentoring early-career faculty researchers is important-but first "train the trainer". *Academic Medicine. 91*:1598-1600.
Sorinola O., Thistlethwaite J., Davies D., Peile E. (2017) Realist evaluation of faculty development for medical educators: What works for whom and why in the long-term. *Med Teach. 39*:422-429.

Stalmeijer R. E., McNaughton N., Van Mook W. N. (2014) Using focus groups in medical education research: Amee guide no. 91. *Med Teach. 36*:923-939.
Steinert Y. (2017) Faculty development: From program design and implementation to scholarship. *GMS J Med Educ. 34*:Doc49.
Steinert Y., Mann K., Anderson B., Barnett B. M., Centeno A., Naismith L., Prideaux D., Spencer J., Tullo E., Viggiano T. et al. (2016) A systematic review of faculty development initiatives designed to enhance teaching effectiveness: A 10-year update: Beme guide no. 40. *Med Teach. 38*:769-786.
Taylor D. C., Hamdy H. (2013) Adult learning theories: Implications for learning and teaching in medical education: Amee guide no. 83. *Med Teach. 35*:e1561-1572.
Teaching and Learning Services. 2018. Using peer assessment to make teamwork work. Montreal: McGill University; [accessed]. https://www.mcgill.ca/tls/files/tls/tls-group-peer-assessment-resource-doc-may-2018_0.pdf.
University of Iceland. 2016a. Employees. [accessed 2018 Feb].
https://www.hi.is/kynningarefni/starfsmenn.
University of Iceland. 2016b. Strategy of the university of iceland 2016-21. Reykjavik, Iceland: University of Iceland.
Villagran M. M., Lucke J. F. (2005) Translating communication measures for use in non-english-speaking populations. *Communication Research Reports. 22*:247-251.
Weimer M. (2016). Essential teaching principles: A resource collection for adjunct faculty. Madison, WI: Magna Publications.
Weston-Green K., Wallace M. (2016) A method of providing engaging formative feedback to large cohort first-year physiology and anatomy students. *Adv Physiol Educ. 40*:393-397.

Figure 1 – *Visual presentation of the selected mixed methods design*

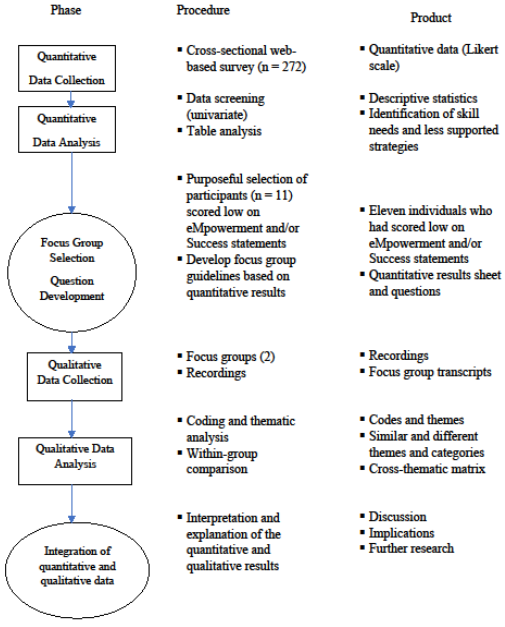
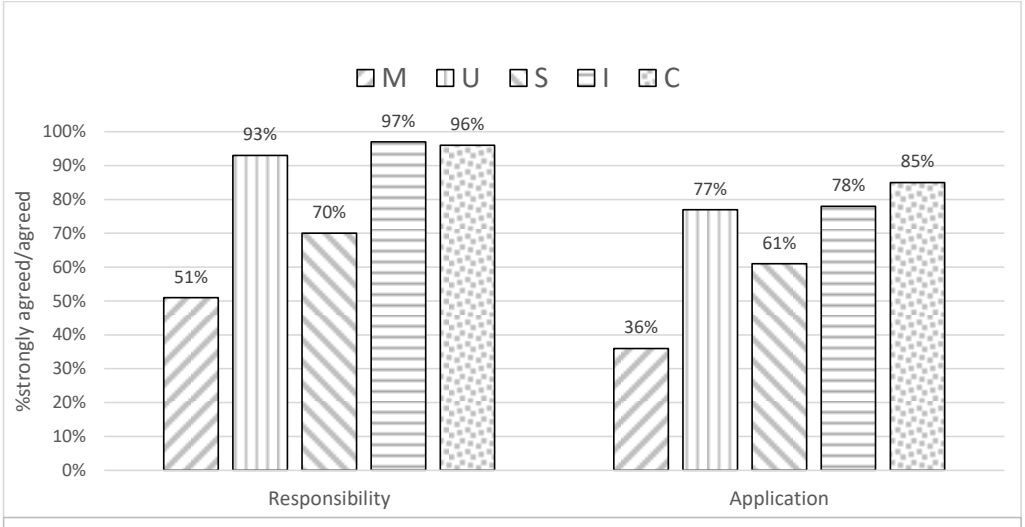


Figure 2 - *Motivation statements related to responsibility and application*

Motivational strategies



Component abbreviations:
Responsibility - "It is part of my responsibility as a teacher to..."; Application - "Consider your teaching in the last year and evaluate the following statements: I..."
M - give students choices in some aspects of their learning; U - explain to students why the knowledge and skills they are learning could be useful to their goals; S -strengthen, by good organization and feedback, my students belief that they can succeed; I - generate student interest about my subject matter; C - communicate

Figure 3 – *Mixed Methods Mapping of Quantitative and Qualitative Results with Implications*

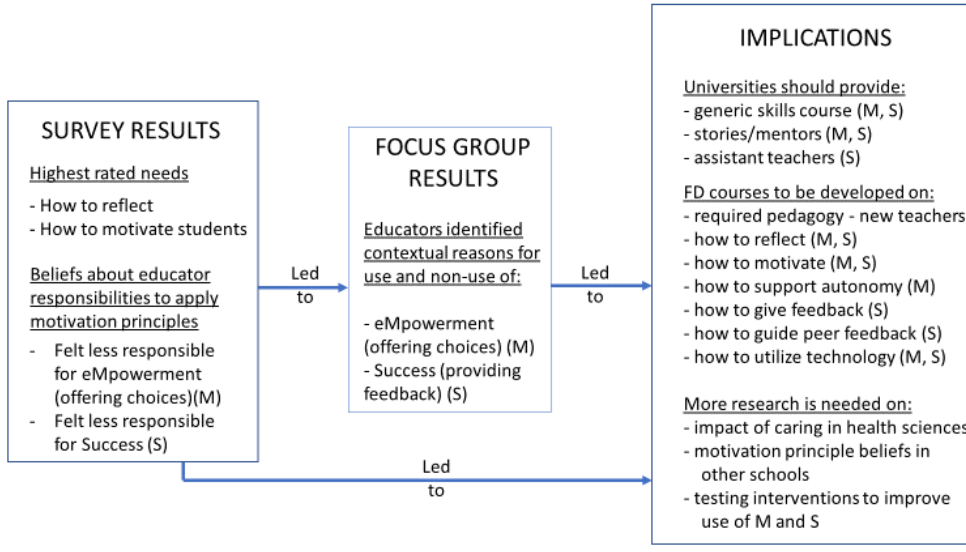


Table 1 – *Survey questions*

Category and Scale	Item	
Skill Needs Rate your need for development of your skills in the following areas: 1 = no need 2 = very little need 3 = little need 4 = much need 5 = great need Not applicable	developing courses and syllabi designing effective teaching strategies for student-centered learning creating a flipped classroom motivating today's learners developing better lecture presentation skills designing effective assessment for students constructing quality test questions and evaluating test results providing constructive feedback to learners at regular intervals mentoring (students and peers) encouraging students to be self-directed using online social media, such as Twitter and Facebook, in teaching using educational technology in the teaching environment communicating your goals and expectations to students learning how to manage common teaching challenges teaching strategies for large groups designing problem-based teaching activities teaching clinical reasoning/critical thinking clinical teaching strategies teaching professionalism using simulation in health sciences teaching small group teaching strategies self-assessing teaching skills and developing a reflective approach to teaching	
Motivational Strategies Responsibility & Application 1 = strongly disagree 2 = disagree 3 = somewhat disagree 4 = somewhat agree 5 = agree 6 = strongly agree Choose not to answer	One of my responsibilities as an educator is:	to give my students some choices in learning (*eMpowerment)* to explain to students why the knowledge and skills they are learning could be useful to their goals *(Usefulness)* to strengthen, by good organization and feedback, my students belief that they can succeed *(Success)* to generate student interest about the subject matter *(Interest)* to communicate respect and caring to my students *(Caring)*
	Consider your teaching in the last year and evaluate the following statements:	I gave my students some choices in learning *(eMpowerment)* I explained to students why the knowledge and skills they are learning could be useful to their goals *(Usefulenss)* I used good organization and feedback to strengthen my students belief they could succeed *(Success)* I generated student interest in the subject matter *(Interest)* I communicated respect and caring to my students *(Caring)*

Table 2 – *Demographics*

	Total TF at HSS	Sample (TF + SF)
# of participants	212	272
Med	56%	58%
RN	15%	18%
Odont	9%	3%
Other	20%	11%
Female	45%	57%

TF = tenured faculty; SF = sessional faculty; Sample = our respondents; Med = Medicine; RN = Nursing; Odont = Odontology; Other = Nutrition and Food science, Pharmacy and Psychology

Table 3 *Faculty Development Need Area*

Please rate your need for development of your skills in the following areas:	Great/some need n (%)	Little/very little/no need n (%)	Not applicable n (%)
1. Self-assessing teaching skills, developing a reflective approach to teaching	206 (83%)	35 (14%)	6 (2%)
2. Motivating today's learners	199 (79%)	34 (13%)	20 (8%)
3. Providing constructive feedback to learners at regular intervals	195 (78%)	41 (16%)	15 (6%)
4. Designing effective assessment for students	193 (76%)	34 (13%)	26 (10%)
5. Encouraging students to be self-directed	185 (74%)	58 (23%)	8 (3%)
6. Using educational technology in the teaching environment	181(72%)	53 (21%)	16 (6%)

Appendix

Interview Guide

I. Explain and have participants sign consent forms. Start recordings.
II. Introductions – everyone introduces themselves
    a. Department, teach undergraduate or graduate students, subject taught
III. Introduce results using handout with graph of responsibilities (left half of Figure 2)
    a. Have participants read over motivational statements
    b. Point out that M and S are much lower than U, I, and C
IV. Discussion:
    a. Any thoughts on the results in general? Any statements unclear?
    b. Choices
        i. Do you think that offering choices is your responsibility? Why or why not?
        ii. Do you offer your students choices? Why or why not?
        iii. Do you feel you have the freedom to offer choices in your classes? Why or why not?
        iv. What helps you and what hinders you from offering choices?
    c. Feedback
        i. Do your think that providing feedback is your responsibility? Why or why not?
        ii. Do you feel you have enough time to give adequate feedback? Why or why not?
        iii. In your experience, do you think that peer feedback works? Share some of your experiences with group work and peer feedback
        iv. What helps you and what hinders you from providing feedback?
    d. Introduce application of motivational principles (right side of Figure 2) – any additional thoughts?
    e. Have you had experiences trying to change your teaching? Would you share?
    f. Any more thoughts on any statements that you found unclear?
V. Thank you

Appendix

Appendix includes the developed survey in English. It was from this original that the Icelandic version the the survey was developed.

Appendix includes the mapping of the research questions. This was the grouping of items that were evaluating the question put forward. In this table, the main question is in the first column, the associated question numbers are in the second column, the actual items from the survey are in the third column (in English), and the associated scale, if applicable, is in the last column.

Appendix includes the translation of the English survey into Icelandic. This was performed by a bilingual expert.

Welcome!

Thank you for your interest! **You are invited to participate in this anonymous survey as a teacher at the School of Health Sciences (HVS).**
The purpose of the survey is to explore your values and motivations as a teacher, as well as your current teaching methods and needs for support. Your input is vital and appreciated as it could have a real impact on the development of teaching and learning at the UoI.
Your participation serves as your consent. This research is in accordance with the new UoI Strategies for 2016-2021 and the goals to improve the quality of learning by providing support services. The study has been approved by the Committee of Post-Graduate Studies, Faculty of Medicine and is funded by The Doctoral Grants of the UoI Research Fund and the UoI Teaching Fund. The Icelandic Data Protection Authority (Persónuvernd) has acknowledged this research.

This survey will take about 15-20 minutes to complete. By completing the survey, you can choose to:

- **receive a 2000 ISK gift card from Boksala Studenta; AND**
- **be entered in a drawing for a 100.000 ISK VISA gift card; AND**
- **know that you contributed to the goals of The University of Iceland to improve teaching (and to our research)**

We all know that participation is very important to effective survey research so we hope that you participate and share your valuable thoughts and insights about this important topic!
Please contact me with any questions at 831-4200 or abigail@hi.is or Dr. Ásta B. Schram, doctoral advisor, Educational Developer for HVS (kennsluþróunarstjóri) and the responsible party, at astabryndis@hi.is

THANK YOU! Abby Snook - PT, MS, MEd, doctoral candidate

Some logistics to consider...

- **Results will be presented in journals and conferences without any self-identifying information and used to improve teacher support.**
- **Answers are saved when you move on to the next page. It is possible to leave the survey and return to complete it at a later time if you use the same device and operating system to access it again. All answers are final when you click the 'Done' button on the last page.**
- **% completed indicates percent of survey completion when that page is completed.**

Values and attitudes

Rate the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
1. I had instruction in how to teach before I began to teach.	○	○	○	○	○	○	○
2. I would have liked more instruction in how to teach before I began to teach.	○	○	○	○	○	○	○
3. During teaching I am completely in my element.	○	○	○	○	○	○	○
4. Success in my teaching is very valuable to me.	○	○	○	○	○	○	○
5. I feel connected to my HI department (deild or námsbraut) colleagues.	○	○	○	○	○	○	○

Rate the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
6. I look forward to my next teaching most of the time.	○	○	○	○	○	○	○
7. I often search for information about teaching strategies in research articles about teaching and learning.	○	○	○	○	○	○	○
8. I enjoy my teaching most of the time.	○	○	○	○	○	○	○
9. Members of my HI department frequently share teaching practices they have found to be successful.	○	○	○	○	○	○	○
10. It matters to me how well I do in my teaching.	○	○	○	○	○	○	○

Rate the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
11. I have time to invest in improving my teaching skills.	◯	◯	◯	◯	◯	◯	◯
12. Being good at teaching is an important part of who I am.	◯	◯	◯	◯	◯	◯	◯
13. Teaching enriches my job.	◯	◯	◯	◯	◯	◯	◯
14. I have specific HI departmental colleagues whom I would look to for help if I wanted to improve my teaching methods.	◯	◯	◯	◯	◯	◯	◯
15. Doing well as a teacher is very important to me.	◯	◯	◯	◯	◯	◯	◯
16. My strength is more in research than in teaching.	◯	◯	◯	◯	◯	◯	◯

Rate the following statements.

I teach because...

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
17. it challenges my established views and enables me to keep learning.	◯	◯	◯	◯	◯	◯	◯
18. I find the contents of my lessons important.	◯	◯	◯	◯	◯	◯	◯
19. I am convinced that it is a health professional's duty to pass on his/her knowledge.	◯	◯	◯	◯	◯	◯	◯
20. it's important for me to make my contribution to students becoming good health care professionals in the future.	◯	◯	◯	◯	◯	◯	◯
21. I was inspired by an excellent teacher as a health sciences student.	◯	◯	◯	◯	◯	◯	◯
22. it's a part of my job description.	◯	◯	◯	◯	◯	◯	◯

I teach because... Other (please specify in either English or Icelandic)

Responsibilities

Rate the following statements.

It is a part of my responsibilities as a teacher to

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
23. strengthen, by good organization and feedback, my students belief that they can succeed.	○	○	○	○	○	○	○
24. give my students choices in some aspects of their learning.	○	○	○	○	○	○	○
25. reflect on my teaching skills and how I can improve my teaching.	○	○	○	○	○	○	○
26. generate student interest about my subject matter.	○	○	○	○	○	○	○
27. use a variety of teaching methods when teaching.	○	○	○	○	○	○	○

It is part of my responsibilities as a teacher to

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
28. invest time and energy (e.g., study, courses, workshops) in improving my teaching.	○	○	○	○	○	○	○
29. communicate respect and caring to my students.	○	○	○	○	○	○	○
30. find ways to adapt to the needs and expectations of today's students.	○	○	○	○	○	○	○
31. explain to students why the knowledge and skills they are learning could be useful to their goals.	○	○	○	○	○	○	○

Other responsibilities as teacher (please specify in English or Icelandic)

Current use of teaching strategies

I use the following teaching strategies:

	Never	Seldom	Somewhat	Often	Always	Not applicable
32. Lectures	◯	◯	◯	◯	◯	◯
33. Small group strategies	◯	◯	◯	◯	◯	◯
34. Discussions	◯	◯	◯	◯	◯	◯
35. Flipped teaching (vendikennsla) (i.e., student responsible for learning before lesson using audio/video lectures; teaching time used primarily for discussion/projects that further learning)	◯	◯	◯	◯	◯	◯
36. Debate	◯	◯	◯	◯	◯	◯
37. Strategies using computer software	◯	◯	◯	◯	◯	◯

I use the following teaching strategies:

	Never	Seldom	Somewhat	Often	Always	Not applicable
38. Problem based/Case based teaching	◯	◯	◯	◯	◯	◯
39. Demonstration/clinical skills teaching	◯	◯	◯	◯	◯	◯
40. Peer/team based teaching (delegation)	◯	◯	◯	◯	◯	◯
41. One on One teaching	◯	◯	◯	◯	◯	◯
42. Ward/Clinic based	◯	◯	◯	◯	◯	◯
43. On-line teaching	◯	◯	◯	◯	◯	◯

Other teaching strategies I use (please specify in English or Icelandic)

Teaching

Consider, in general, the teaching you have done with HI students in the last year and rate the following statements:

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
44. I generated student interest in the material.	○	○	○	○	○	○	○
45. With good organization and feedback, I strengthened my students' belief that they could be successful.	○	○	○	○	○	○	○
46. I communicated that I cared and respected my students.	○	○	○	○	○	○	○
47. I explained to the students why the knowledge and skills they were learning could be useful to their goals.	○	○	○	○	○	○	○
48. I gave my students choices in in some aspects of their learning.	○	○	○	○	○	○	○
49. I reflected on my teaching skills and on how I could improve my teaching.	○	○	○	○	○	○	○

Motivation to improve

I would be motivated to try out a new teaching method…

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
50. if I heard stories of how colleagues of mine used a new teaching method effectively.	○	○	○	○	○	○	○
51. if I knew it benefited my students.	○	○	○	○	○	○	○
52. if I was given ‘how-to’ knowledge about a teaching method.	○	○	○	○	○	○	○
53. if I was financially rewarded for attending courses and workshops on enhancing my teaching.	○	○	○	○	○	○	○
54. if I had the freedom to determine how I teach.	○	○	○	○	○	○	○

I would be motivated to try out a new teaching method...

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
55. if I received feedback from other teachers or my supervisors on my teaching.	○	○	○	○	○	○	○
56. if my students were more motivated.	○	○	○	○	○	○	○
57. if I was shown appreciation for enhancing my teaching methods.	○	○	○	○	○	○	○
58. if it improved my ratings on student evaluations.	○	○	○	○	○	○	○
59. if I got technical assistance (e.g., in the classroom) when I needed it for use with computer software in teaching	○	○	○	○	○	○	○

I would be motivated to try out a new teaching method if...Other (please specify in English or Icelandic)

Interest and needs

Please rate your need for development of your skills in the following areas:

	No need at all	Very little need	Small need	Moderate need	Strong need	Not applicable
60. Developing courses and syllabi	○	○	○	○	○	○
61. Designing effective teaching strategies for student-centered learning	○	○	○	○	○	○
62. Creating a flipped classroom	○	○	○	○	○	○
63. Motivating today's learners	○	○	○	○	○	○
64. Developing better lecture presentation skills	○	○	○	○	○	○
65. Designing effective assessment for students	○	○	○	○	○	○

Please rate your need for development of your skills in the following areas:

	No need at all	Very little need	Small need	Moderate need	Strong need	Not applicable
66. Constructing quality test questions and evaluating test results	○	○	○	○	○	○
67. Providing constructive feedback to learners at regular intervals	○	○	○	○	○	○
68. Mentoring (students and peers)	○	○	○	○	○	○
69. Encouraging students to be self-directed (learning on their own)	○	○	○	○	○	○
70. Using online social media, such as Twitter and Facebook, in teaching	○	○	○	○	○	○

Please rate your need for developing your skills in the following areas:

	No need at all	Very little need	Small need	Moderate need	Strong need	Not applicable
71. Using educational technology in the teaching environment	○	○	○	○	○	○
72. Communicating your goals and expectations to students	○	○	○	○	○	○
73. Learning how to manage common teaching challenges, including issues of diversity, dishonesty, disability and students experiencing difficulties	○	○	○	○	○	○
74. Teaching strategies for large groups	○	○	○	○	○	○
75. Designing problem/case-based (PBL) teaching activities	○	○	○	○	○	○

Please rate your need for developing your skills in the following areas:

	No need at all	Very little need	Small need	Moderate need	Strong need	Not applicable
76. Teaching clinical reasoning/critical thinking	◯	◯	◯	◯	◯	◯
77. Clinical teaching strategies	◯	◯	◯	◯	◯	◯
78. Teaching professionalism	◯	◯	◯	◯	◯	◯
79. Using simulation in health sciences teaching	◯	◯	◯	◯	◯	◯
80. Small group teaching strategies	◯	◯	◯	◯	◯	◯
81. Self-assessing teaching skills and developing a reflective approach to teaching	◯	◯	◯	◯	◯	◯

Other needs (please specify in either English or Icelandic)

Faculty development

82. I participate in activities that develop my teaching methods (e.g., workshops, discussion groups, online courses)

- ◯ Never
- ◯ Rarely (1-2x/year)
- ◯ Sometimes (3-4x/year)
- ◯ Often (5-7x/year)
- ◯ Frequently (8+x/year)

If the answer to question 82 is NOT 'never'

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	I choose not to answer
83. the course(s) I attended was/were beneficial to me.	◯	◯	◯	◯	◯	◯	◯
84. generally speaking, I have used what I learned in workshops / training courses in my teaching	◯	◯	◯	◯	◯	◯	◯

How likely would you be to participate in a faculty development program to improve your teaching methods if it was offered in each of the following formats?

	Not at all likely	Very unlikely	Unlikely	Likely	Very likely
85. On-line course (at your own pace)	○	○	○	○	○
86. Blended format (online and face to face)	○	○	○	○	○
87. Videoconference	○	○	○	○	○
88. Individual or group consultation	○	○	○	○	○
89. 1-2 hour session/workshop	○	○	○	○	○
90. 3 hour session/workshop	○	○	○	○	○

How likely would you be to participate in a faculty development program to improve your teaching methods if it was offered in each of the following formats?

	Not at all likely	Very unlikely	Unlikely	Likely	Very likely
91. Full day workshop	○	○	○	○	○
92. Electronic networking for sharing and collaboration (discussion boards)	○	○	○	○	○
93. Discussion groups (in person)	○	○	○	○	○
94. Presentations by experts outside the University	○	○	○	○	○
95. Integration into department/division meetings	○	○	○	○	○
96. Integration into society/association meetings	○	○	○	○	○

Other formats you would be interested in (please specify in English or Icelandic)

A few words about you

97. What department do you primarily teach for?

98. What is your teaching position?

- ◯ (Fastráðin(n)) Tenured/non-tenured faculty member (full or part-time)
- ◯ Part-time teacher/stundakennari who teaches in classroom **only**
- ◯ Part-time teacher/stundakennari who teaches in **both** classroom and clinic
- ◯ Clinical teacher **only**

99. If you are a part-time classroom teacher, estimate how many hours you teach per the academic year. If you only teach in the clinic or are tenured full-time teacher, please leave blank.

100. What is your gender?

- ◯ Male
- ◯ Female
- ◯ Not specified

101. Please enter your age.

- ◯ < 40 years of age
- ◯ 40-52
- ◯ 53-70
- ◯ 71+
- ◯ Not specified

Compensation for completion

I would like to receive a 2000 ISK gift card at Boksala Studenta for participation in this survey

- ◯ Yes
- ◯ No

I would like to be entered in the drawing for the 100.000 ISK VISA card for participation in this survey.

- ◯ Yes
- ◯ No

Please enter your ID Number that was included in your invitation email. (The link between this number and your email will only be used for survey reminders and participation awards.)

Research question	Questions	Items (boldened were utilized in thesis)	How and where utilized in thesis
To what extent are health professional teachers intrinsically motivated to teach? - validated scale SDT	3, 6, 8, 13	**During teaching, I am completely in my element (3); I look forward to my next teaching most of the time (6); I enjoy teaching most of the time (8); Teaching enriches my job**	Validated Scale - intrinsic motivation (IM) - Paper I
To what extent were teachers trained to teach and would they have liked more training ?	1, 2	I had instruction in how to teach before I began to teach (1); **I would have like more instruction in how to teach before I began to teach (2)**	Single lines - Paper I
To what extent are teachers motivated to teach by factors commonly mentioned by health care providers? Validated scale for identified regulation (as part of extrinsic motivation - SDT) in Q 18-20	17-22	I teach because…. It challenges by established views and enables me to keep learning (17); **I find the contents of my lesson important (18); I am convinced that it is a health professional's duty to pass on his/her knowledge (19); It's important for me to make my contribution to students becoming good health care professionals in the future (20);** I was inspired by an excellent teacher as a health sciences student (21); it's part of my job description (22)	18-20 Validated Scale - identified regulation (IR) - Paper I
To what extent do teachers associate their identity with being a good teacher? - validated scale	4, 10, 12, 15	**Success in teaching is very valuable to me (4); It matters to me how well I do in my teaching (10); Being good at teaching is an important part of who I am (12); Doing well as a teacher is very important to me (15)**	Validated Scale - identification with teaching and identity as medical educator (ID) - Papers I and II
To what extent do teachers experience connectedness as a motivator to be a better teacher?	5, 9, 14	**I feel connected to my HI department colleagues (5); Members of my HI department frequently share teaching practices they have found to be successful (9); I have specific HI departmental colleagues whom I would look to for help if I wanted to improve my teaching methods (14)**	New Scale - Connectedness (CO) - Papers I and II
To what extent do other factors affect the motivation to try out a new teaching method?	51-59	I would be motivated to try out a new teaching method if I heard stories of how colleagues of mine used a new teaching method effectively (50); I would be motivated to try out a new teaching method… if I knew it benefitted my students (51); if I was given 'how-to' knowledge about a teaching method (52); **if I was financially rewarded for attending courses and workshops on enhancing my teaching (53)**; if I had the freedom to determine how I teach (54); **if I received feedback from other teachers or my supervisors on my teaching (55);** if my students were more motivated (56); **if I was shown appreciation for enhancing my teaching methods (57); if I improved my ratings on student evaluations (58)**; if I got technical assistance when I needed it (e.g. in the classroom) for use with computer software in teaching (59)	New Scale with ones boldened - Appreciation (AP) - Papers I and II
To what extent are teachers open to reflective practice for improvement and diverse teaching methods?	25, 27, 49	**It is part of my responsibilities as a teacher to reflect on my teaching skills and how I can improve my teaching (25); It is part of my responsibilities as a teacher to use a variety to teaching methods when teaching (27); (In the past course) I reflected on my teaching skills and on how I could improve my teaching (49)**	New Scale - openness to improve (OP) - Papers I and II
To what extent do teachers see themselves more as researchers than teachers?	16	My strength is more in research than in teaching (16)	

To what extent do teachers have time to improve their teaching?	7, 11	I often search for information about teaching strategies in research articles about teaching and learning (7); I have time to invest in improving my teaching skills (11)	
To what extent do teachers feel they need to adapt to today's learner?	28, 30	**It is part of my responsibilities as a teacher to invest time and energy (e.g., study, courses, workshops) in improving my teaching (28);** to find ways to adapt to the needs and expectations of today's students (30)	Single line - Paper I
How often do teachers participate in faculty development activities?	82, 83, 84	**How many times did you participate in activities that develop your teaching methods in the last year?** If participated, were they helpful and useful?	Single line - Paper I
To what extent do the teachers feel that the principles of motivational theory are a responsibility in teaching? MUSIC Model	23, 24, 26, 29, 31	**It is part of my responsibilities as a teacher to strengthen, by good organization and feedback, my students belief that they can succeed (23); give my students choices in some aspects of their learning (24); generate student interest about my subject matter (26); communicate respect and caring to my students (29); explain to students why the knowledge and skills they are learning could be useful to their goals (31)**	Single items - paper IV
To what extent are teachers using motivational theory in their classrooms? (MUSIC Model)	44-48	**In my last course, I generated student interest in the material (44); with good organization and feedback, I strengthened my students' belief that they could be successful (45); I communicated that I cared and respected my students (46); I explained to my students why the knowledge they are learning could be useful to their goals (47); I gave my students choices in some aspects of their learning (48)**	Single items - paper IV
How often are the named teaching methods being used by teachers?	32-43	I use the following teaching strategies: lectures (32); small group strategies (33); discussions (34); flipped teaching (35); debate (36); strategies using computer software (37); problem-based/case based teaching (38); demonstration/clinical skills teaching (39); peer/team based teaching (delegation) (40); one on one teaching (41); ward/clinic based (42); on-line teaching (43)	
To what extent are the named teaching methods perceived as a needed as part of faculty development?	60-81	**Please rate your need for development of your skills in the following areas: developing courses and syllabi (60); designing effective teaching strategies for student-centered learning (61); creating a flipped classroom (62); motivating today's learners (63); developing better lecture presentation skills (64); designing effective assessment for students (65); constructing quality test questions and evaluating test results (66); providing constructive feedback to learners at regular intervals (67); mentoring (students and peers) (68); encouraging students to be self-directed (69); using online social media, such as Twitter and Facebook, in teaching (70); using educational technology in the teaching environment (71); communicating your goals and expectations to students (72); learning how to manage common teaching challenges (73); teaching strategies for large groups (74); designing problem-based teaching activities (75); teaching clinical reasoning/critical**	Single items - paper IV

		thinking (76); clinical teaching strategies (77); teaching professionalism (78); using simulation in health sciences teaching (79); small group teaching strategies (80); self-assessing teaching skills and developing a reflective approach to teaching (81)	
What learner preferences exist for faculty development?	85-96	**How likely would you be to participate in a faculty development program to improve your teaching methods if it was offered in the following formats? Online course (at your own pace) (85); blended format (online and face to face) (86); videoconference (87); individual or group consultation (88); 1-2 hour session/workshop (89); 3 hour session/workshop (90); full day workshop (91); electronic networking for sharing and collaboration (discussion boards) (92); discussion groups (in person) (93); presentation by experts outside the university (94); integration into department/division meetings (95); integration into society/association meetings (96)**	Single items - paper I
	97-101	**Department (97); teaching position (98); hours if part-time (99); gender (100); age (101)**	Single items - papers I, II, and IV

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ

Kennsluþróun og stoðþjónsta

Velkomin(n)!

Kennurum á Heilbrigðisvísindi (HVS) býðst hér með að taka þátt í könnun um kennsluhætti á sviðinu og viðhorf kennara til þeirra. Könnunin er liður í að finna leiðir til að efla gæði kennslu, en það er eitt helsta áhersluatriði stefnu HÍ21, sem er stefna Háskóla Íslands 2016-2021. Rannsóknin er ópersónugreinanleg og hefur hlotið tilskilin leyfi.

Góð þátttaka er mikilvæg til að rannsóknin skili skýrum og gagnlegum niðurstöðum. Við hvetjum ykkur því eindregið til að taka þátt í könnuninni! Þessi könnun er opin til 6. des. 2017.

Það tekur um 12-15 mínútur að svara könnuninni. Þegar því er lokið getur þú valið
- **að fá sent 2.000 kr gjafakort frá Bóksölu stúdenta OG/EÐA**
- **að komast í pott fyrir 100.000 kr VISA gjafakort**

Ef þú óskar frekari upplýsinga hafðu þá vinsamlega samband við mig
Abby: 831-4200, abigail@hi.is
eða dr. Ástu B. Schram, ábyrgðaraðila verkefnisins og kennsluþróunarstjóra HVS: astabryndis@hi.is

Með fyrirfram þökk
Abby Snook – PT, MS, MEd, doctoral candidate

Frekari upplýsingar...

- **Niðurstöður verða birtar í tímaritum og á ráðstefnum án persónugreinanlegra upplýsinga og notaðar m.a. til að efla stuðning við kennara.**
- **Svörin vistast um leið og þú ferð á næstu blaðsíðu. Það er hægt að gera hlé á því að svara og koma til baka síðar ef þú notar sama tækið (tölvu/síma) og sama stýrikerfi aftur. Ekki er hægt að breyta svörum eftir að þú ýtir á Done hnappinn á síðustu blaðsíðunni.**
- **% lokið (completed) gefur til kynna hversu miklu er lokið þegar blaðsíðunni hefur verið svarað.**

Veldu það svar sem best á við:

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
1. Ég fékk fræðslu í kennsluháttum áður en ég hóf kennslu.	○	○	○	○	○	○	○
2. Ég hefði viljað meiri fræðslu í kennsluháttum áður en ég hóf kennslu.	○	○	○	○	○	○	○
3. Þegar ég er að kenna er ég í essinu mínu.	○	○	○	○	○	○	○
4. Það er mér mikils virði að ég nái góðum árangri í kennslunni.	○	○	○	○	○	○	○
5. Ég finn fyrir sterkum tengslum við samstarfsfélaga deildar/námsbrautar minnar við HÍ.	○	○	○	○	○	○	○

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ
Kennsluþróun og stoðþjónsta

Veldu það svar sem best á við:

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
6. Ég hlakka yfirleitt til kennslunnar.	○	○	○	○	○	○	○
7. Ég leita oft eftir upplýsingum um kennsluhætti í rannsóknargreinum um nám og kennslu.	○	○	○	○	○	○	○
8. Ég hef yfirleitt gaman að því að kenna.	○	○	○	○	○	○	○
9. Meðlimir deildar/námsbrautar minnar í HÍ deila oft kennsluaðferðum sem þeim hafa fundist bera árangur.	○	○	○	○	○	○	○
10. Það skiptir mig máli hversu vel mér gengur í kennslunni.	○	○	○	○	○	○	○

Veldu það svar sem best á við:

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
11. Ég hef tíma til að auka kennsluhæfni mína.	○	○	○	○	○	○	○
12. Að vera góður kennari er mikilvægur hluti af sjálfri/sjálfum mér.	○	○	○	○	○	○	○
13. Kennslan auðgar starf mitt.	○	○	○	○	○	○	○
14. Ef ég vildi bæta við kennsluaðferðir mínar, þá gæti ég leitað til ákveðinna starfsfélaga innan deildar/námsbrautar minnar hjá HÍ.	○	○	○	○	○	○	○
15. Það er mjög mikilvægt fyrir mig að ég standi mig vel sem kennari.	○	○	○	○	○	○	○
16. Styrkleikar mínir liggja meira í rannsóknarvinnu en kennslu.	○	○	○	○	○	○	○

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ
Kennsluþróun og stoðþjónsta

Veldu það svar sem best á við:

Ég kenni vegna þess að

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
17. það gefur mér færi á að endurmeta skoðanir mínar og halda áfram að læra.	○	○	○	○	○	○	○
18. mér finnst innihald kennslu minnar mikilvægt.	○	○	○	○	○	○	○
19. ég er sannfærð um það, að sérfræðingum í heilbrigðisvísindum beri skylda til að miðla þekkingu sinni.	○	○	○	○	○	○	○
20. mér finnst mikilvægt að leggja mitt af mörkum til nemenda sem munu starfa í heilbrigðisvísindum í framtíðinni.	○	○	○	○	○	○	○
21. frábær kennari veitti mér innblástur þegar ég var nemandi í heilbrigðisvísindum.	○	○	○	○	○	○	○
22. það er hluti af starfslýsingu minni.	○	○	○	○	○	○	○

Ég kenni vegna þess að... (annað)

Veldu það svar sem best á við:

Ein af skyldum mínum sem kennari er að

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
23. nota gott skipulag og tíða endurgjöf (feedback) til að styrkja þá trú nemenda að þeir muni geta náð góðum árangri í námskeiðinu.	○	○	○	○	○	○	○
24. gefa nemendum mínum að einhverju leyti valmöguleika í náminu.	○	○	○	○	○	○	○
25. hugleiða kennsluhæfni mína og það hvernig ég geti bætt við mig þekkingu og færni í kennslunni.	○	○	○	○	○	○	○
26. vekja áhuga nemenda á námsefninu.	○	○	○	○	○	○	○
27. nota mismunandi kennsluaðferðir.	○	○	○	○	○	○	○

Veldu það svar sem best á við:

Ein af skyldum mínum sem kennari er að

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
28. verja tíma og orku (t.d. námskeið, vinnustofur) í að bæta við færni og þekkingu mína á kennsluháttum.	○	○	○	○	○	○	○
29. bera virðingu og umhyggju fyrir nemendum mínum.	○	○	○	○	○	○	○
30. finna leiðir til að aðlagast þörfum og væntingum nútíma nemenda.	○	○	○	○	○	○	○
31. útskýra fyrir nemendum hvers vegna sú þekking og færni sem þeir eru afla sér gæti hjálpað þeim að ná markmiðum sínum.	○	○	○	○	○	○	○

Aðrar skyldur kennara

Notkun á kennsluaðferðum

Ég nota eftirfarandi kennsluaðferðir:

	aldrei	sjaldan	stundum	oft	alltaf	á ekki við
32. Fyrirlestrar.	○	○	○	○	○	○
33. Kennsluaðferðir fyrir litla hópa.	○	○	○	○	○	○
34. Umræður.	○	○	○	○	○	○
35. Vendikennsla (þ.e. nemendur undirbúa sig fyrir kennslustundina með því að hlusta/horfa á upptökur/myndbönd af fyrirlestrum; kennslustundin fer svo að mestu leyti í umræður/verkefni sem auka skilning og dýpka nám).	○	○	○	○	○	○
36. Málfundir/rökræður.	○	○	○	○	○	○
37. Aðferðir þar sem notast er við tölvuhugbúnað/tækni í námi.	○	○	○	○	○	○

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ
Kennsluþróun og stoðþjónsta

Ég nota eftirfarandi kennsluaðferðir:

	aldrei	sjaldan	stundum	oft	alltaf	á ekki við
38. Lausnaleitarnám (PBL)/tilfellakennsla.	○	○	○	○	○	○
39. Sýnikennsla/herminám/færniþjálfun.	○	○	○	○	○	○
40. Jafningjafræðsla.	○	○	○	○	○	○
41. Einstaklingskennsla.	○	○	○	○	○	○
42. Kennsla á sjúkrahúsi/heilsugæslu.	○	○	○	○	○	○
43. Kennsla í gegnum vef (online).	○	○	○	○	○	○

Aðrar kennsluaðferðir sem ég nota

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ
Kennsluþróun og stoðþjónsta

Hugleiddu í heild þá kennslu sem þú hefur innt af hendi við HÍ síðastliðið ár og veldu það svar sem á best við:

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
44. Ég vakti áhuga nemenda á námsefninu.	○	○	○	○	○	○	○
45. Ég notaði gott skipulag og endurgjöf og styrkti þannig þá trú nemenda minna að þeir gætu náð góðum árangri.	○	○	○	○	○	○	○
46. Ég sýndi nemendum að ég bæri umhyggju og virðingu fyrir þeim.	○	○	○	○	○	○	○
47. Ég útskýrði fyrir nemendum hvers vegna sú þekking og hæfni sem þeir væru að öðlast gæti hjálpað þeim að ná markmiðum sínum.	○	○	○	○	○	○	○
48. Ég gaf nemendum mínum að einhverju leyti valmöguleika í náminu.	○	○	○	○	○	○	○
49. Ég hugleiddi kennsluhæfni mína og hvernig ég gæti bætt við mig í kennslunni.	○	○	○	○	○	○	○

Það myndi hvetja mig til að prófa nýja kennsluaðferð ef

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
50. samstarfsfélagar mínir deildu aðferð sem þeir hefðu reynt og hún hefði skilað góðum árangri í námi nemenda.	○	○	○	○	○	○	○
51. ég vissi að nemendur mínir myndu njóta góðs af henni.	○	○	○	○	○	○	○
52. mér væru gefnar leiðbeiningar um kennsluaðferðina.	○	○	○	○	○	○	○
53. ég hefði fjárhagslegan ávinning af því að sækja námskeið og vinnustofur sem myndu bæta við kennsluhæfni mína.	○	○	○	○	○	○	○
54. ég fengi frelsi til að ákveða hvernig ég kenni.	○	○	○	○	○	○	○

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ
Kennsluþróun og stoðþjónsta

Það myndi hvetja mig til að prófa nýja kennsluaðferð ef:

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
55. ég fengi endurgjöf frá öðrum kennurum eða yfirmönnum mínum um það hvernig ég kenni.	○	○	○	○	○	○	○
56. að nemendur mínir væru virkari.	○	○	○	○	○	○	○
57. ég fyndi að það væri mikils metið að ég lærði og prófaði nýja kennsluhætti.	○	○	○	○	○	○	○
58. það myndi bæta einkunn mína í kennslukönnunum.	○	○	○	○	○	○	○
59. ég fengi tæknilega aðstoð, t.d. inn í kennslustofuna, einmitt þegar ég þyrfti á henni að halda vegna notkunar á tölvuhugbúnaði.	○	○	○	○	○	○	○

Það myndi hvetja mig til að prófa nýja kennsluaðferð ef

Segðu til um hversu mikið þér finnst þú þurfa að þróa kennsluhætti þína á eftirfarandi sviðum:

	engin þörf	mjög lítil þörf	lítil þörf	meðal þörf	mikil þörf	á ekki við
60. Að hanna námskeið og útbúa kennsluáætlanir.	○	○	○	○	○	○
61. Að hanna námskeið með árangursríkum kennsluaðferðum sem passa nemendamiðuðu námi.	○	○	○	○	○	○
62. Vendikennsla (flipped classroom).	○	○	○	○	○	○
63. Að virkja nútíma nemendur (efla áhugahvöt).	○	○	○	○	○	○
64. Að halda betri fyrirlestra og kynningar.	○	○	○	○	○	○
65. Að þróa árangursríkt námsmat.	○	○	○	○	○	○

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ
Kennsluþróun og stoðþjónsta

Segðu til um hversu mikið þér finnst þú þurfa að þróa kennsluhætti þína á eftirfarandi sviðum:

	engin þörf	mjög lítil þörf	lítil þörf	meðal þörf	mikil þörf	á ekki við
66. Að útbúa góðar prófspurningar og meta niðurstöður úr prófum.	○	○	○	○	○	○
67. Að veita nemendum - reglulega - uppbyggilega endurgjöf.	○	○	○	○	○	○
68. Að leiðbeina nemendum og samstarfsfólki.	○	○	○	○	○	○
69. Að hvetja nemendur til að taka ábyrgð á námi sínu.	○	○	○	○	○	○
70. Að nota samfélagsmiðla, s.s. Twitter og Facebook, í kennslu.	○	○	○	○	○	○

Segðu til um hversu mikið þér finnst þú þurfa að þróa kennsluhætti þína á eftirfarandi sviðum:

	engin þörf	mjög lítil þörf	lítil þörf	meðal þörf	mikil þörf	á ekki við
71. Að nota tækni í kennsluumhverfinu.	○	○	○	○	○	○
72. Að tjá nemendum hver markmið þín og væntingar eru.	○	○	○	○	○	○
73. Að læra hvernig á að fara með algengar áskoranir innan kennslunnar, þ.á.m. fjölbreytni, óheiðarleika, fötlun og nemendur í erfiðleikum.	○	○	○	○	○	○
74. Að læra kennsluaðferðir fyrir stóra hópa.	○	○	○	○	○	○
75. Að hanna PBL (lausnaleitarnám/tilfellakennslu).	○	○	○	○	○	○

Segðu til um hversu mikið þér finnst þú þurfa að þróa kennsluhætti þína á eftirfarandi sviðum:

	engin þörf	mjög lítil þörf	lítil þörf	meðal þörf	mikil þörf	á ekki við
76. Að kenna rökrétta, klíníska ákvarðanatöku (clinical reasoning).	◯	◯	◯	◯	◯	◯
77. Klínískar kennsluaðferðir.	◯	◯	◯	◯	◯	◯
78. Að kenna fagmennsku.	◯	◯	◯	◯	◯	◯
79. Að nota herminám og færniþjálfun (simulation and skills).	◯	◯	◯	◯	◯	◯
80. Kennsluaðferðir fyrir litla hópa.	◯	◯	◯	◯	◯	◯
81. Sjálfsrýni varðandi eigin kennsluhætti.	◯	◯	◯	◯	◯	◯

Annað

82. Ég tek þátt í uppákomum sem hjálpa mér að þróa kennsluaðferðir mínar (t.d. vinnustofum, námskeiðum, umræðuhópum, ráðstefnum)

- ◯ aldrei
- ◯ sjaldan (1-2/ári)
- ◯ stundum (3-4/ári)
- ◯ oft (5-7/ári)
- ◯ mjög oft (8+/ári)

Ef svarið við 82 er ekki 'aldrei',

	mjög ósammála	ósammála	nokkuð ósammála	nokkuð sammála	sammála	mjög sammála	kýs að svara ekki
83. Þegar á heildina er litið hef ég haft gagn af þessum vinnustofum/námskeiðum.	◯	◯	◯	◯	◯	◯	◯
84. Almennt talað, hef ég notað það sem ég lærði á vinnustofunum/námskeiðunum til að móta kennsluhætti mína.	◯	◯	◯	◯	◯	◯	◯

Hversu líklegt væri að þú myndir nýta þér kennsluþróunartækifæri til að auka þekkingu þína á fjölbreyttum kennsluháttum ef það stæði til boða í eftirfarandi sniðum?

	Alls ekki líklegt	mjög ólíklegt	ólíklegt	líklegt	mjög líklegt
85. Fjarnám (á þínum eigin hraða).	◯	◯	◯	◯	◯
86. Blandað snið (fjarnám og staðbundið).	◯	◯	◯	◯	◯
87. Fjarfundir (videoconference).	◯	◯	◯	◯	◯
88. Einstaklings- eða hóparáðgjöf.	◯	◯	◯	◯	◯
89. 1-2 klukkustunda lotur/vinnustofur.	◯	◯	◯	◯	◯
90. 3 klst lotur/vinnustofur.	◯	◯	◯	◯	◯

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ
Kennsluþróun og stoðþjónsta

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	alls ekki líklegt	mjög ólíklegt	ólíklegt	líklegt	mjög líklegt
91. Heilsdags vinnustofur.	◯	◯	◯	◯	◯
92. Rafræn tengslanet (social networking) til að skiptast á skoðunum og til að vinna saman.	◯	◯	◯	◯	◯
93. Umræðuhópar (á staðnum).	◯	◯	◯	◯	◯
94. Kynningar frá sérfræðingum utan háskólans.	◯	◯	◯	◯	◯
95. Sem hluti af deildarfundi/fundi námsleiða.	◯	◯	◯	◯	◯
96. Sem hluti af samfélags-/félagsfundi.	◯	◯	◯	◯	◯

Önnur snið

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ
Kennsluþróun og stoðþjónsta

97. Við hvaða deild starfar þú aðallega?

98. Hver er staða þín?

- ◯ Fastráðin(n)
- ◯ Kennari í hlutastarfi/stundakennari sem kennir aðeins í kennslustofu
- ◯ Kennari í hlutastarfi/stundakennari sem kennir bæði í kennslustofu og á heilbrigðisstofnun
- ◯ Kenni eingöngu á heilbrigðisstofnun
- ◯ Annað

99. Ef þú ert stundakennari sem kennir í kennslustofunni, hversu marga tíma áætlar þú að þú kennir að meðaltali á ári? Ef þú kennir aðeins klíníska kennslu eða ert fastráðinn kennari, þá skilur þú þennan reit eftir auðan.

100. Kyn

- KK
- KVK
- Ekki tiltekið

101. Aldur

- < 40 ára
- 40-52
- 53-70
- 71+
- Ekki tiltekið

Umbun fyrir þátttöku

Ég myndi gjarnan þiggja 2000 kr. gjafakort í Bóksölu stúdenta fyrir að taka þátt í þessari könnun.

- já
- nei

Ég myndi gjarnan þiggja að fara í pott fyrir visa kort með 100.000 kr. inneign fyrir að taka þátt í þessari könnun.

- já
- nei

Vinsamlegast fyllið inn ID númerið sem var skráð í boðsbréfinu í tölvupóstinum. (Hlekkurinn milli þessa númers og tölvupóstins mun verða notaður til að ítreka boð um þátttöku og vegna umbunar).