

DISCUSSION OF A PILOT CASE STUDY ON ADULT LEARNERS' ONLINE INTERACTION

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ABSTRACT: *This pilot case study explores claims made in literature relating to the causes of lack of online interaction among adult-learners participating in a blended learning programme. Since this study is explorative in nature, it also informs the direction in which subsequent research should go. A preliminary literature review shows the salient factors relating to lack of online interaction as being 'lack of convergence' and 'lack of social presence'. To seek said validation, a practical pilot case study, using a mixed-method approach, was carried out through a questionnaire and through interviews. Results in this study reveal that students do not engage with the online environment when the same content is repeated during f2f meetings, or when online assignments are not addressed during f2f meetings, i.e. lack of convergence. In relation to social presence, the teacher's social presence was considered more important than that of peers as it relates to adult-learners specifically.*

KEYWORDS: blended learning, online interaction, adult-learner

INTRODUCTION

A Learning Management System (LMS) can be used in several ways, which usually can be broken down into 'distance learning', where learning is solely acquired in a formal context through multimedia technologies (Garrison & Cleveland-Innes, 2003), or 'blended learning' where there is a convergence between online activities and learning content (technology-mediated learning) and traditional face-to-face (f2f) learning (Graham, 2006). Both distance learning and blended learning then have a component of e-learning as their mode of delivery (Proctor, 2002). Blended learning owes its success to the interactive possibilities that are enabled through ICT (Garrison & Cleveland-Innes, 2003; Swan, 2001). In fact, blended learning has played a major role in the personalization and digitalization of learning (Drysdale, Graham, Spring, & Halverson, 2013). However, technologies are not yet widely adopted in formal education as has been reported by the Organisation for Economic Co-operation and Development (OECD, 2015).

In staying on par with Dutch government requirements (OCW, 2015), developments of a changing world, and meeting the need for helping students develop 21st century skills, the Institute of Archimedes of the HU University of Applied Sciences, Utrecht, Netherlands, a teacher-trainer college, decided to revise the curriculum by adopting a blended learning approach. The Institute currently has 23 teacher-training programmes, both graduate and undergraduate, that are offered full time and part time, with an average of 2500 students. Nearly a third of these students are adult-learners, both graduate and undergraduate, who participate in the teacher-training programme on a part-time basis.

The Institute defines her interpretation of blended learning along the combination of learning theories, learning objectives and outcomes, and didactic strategies delivered through both the digital environment as well as face-to-face interactions (Picciano, Seaman & Allen, 2010; Vaughan, 2007). The first group of students that were introduced to the Institute's blended learning programme were the Institutes' part-time students, that fall within the definition of adult-learners (Chametzky, 2014).

Two years into the re-designed curriculum, an explorative study (van der Stap, 2017) held among the Institutes' teachers showed that 82% of the teachers (N = 48) report that adult-learning students do not interact with online content. Interaction with online content is interpreted here as student engagement with course resources in the online environment (Murray, Pérez, Geist & Hedrick, 2013). To ensure that their adult-learners do not miss out on learning content as a result of such lack of online interaction, teachers repeat the learning content during f2f meetings that was available to the students in the online environment. The teachers acknowledged that repeating online content during f2f meetings is not a desirable approach to blended learning, however, they feel they have little choice since the adult-learners do not interact with online content. The teachers at the teacher-trainer college are highly skilled in methodology as it applies to the pre-blended learning phase, but feel that employing blended learning in their education requires an expansion of their methodological repertoire. Many teachers (88% of those interviewed) reported that to remedy non-interaction, they would need more knowledge about online interaction in combination with f2f meetings, preferably in the form of an instructional design on blended methodology. These results are consistent with views held by teachers at other higher vocational education institutes, based on interviews with stakeholders held by the applicant at these institutes.

An instructional design on blended methodology which guides teachers, inter alia, on the structure of the online environment, information made available to the student in the online environment, on the convergence of online content and activities and f2f content and activities, the role played by peers, and the role played by the teacher is not a new phenomenon. The importance of an instructional design on blended learning is emphasised by Siragusa, Dixon & Dixon, (2007) who explain that an instructional design is needed to effectively implement blended learning. As King & Arnold (2012) assert, "effective blended courses require effective instructional designs" (p. 47). Seryukov (2015) further explains that without the theory on instructional designs specifically catered for blended learning, teachers may fall back on traditional teaching methods. However, before embarking on an instruction design, a full understanding of factors leveraging adult-learners with online content in a blended learning programme needs to be obtained.

Whilst studies on blended learning are not a new phenomenon There is hardly any literature on encouraging online interaction in a blended learning programme which focusses specifically on adult-learners, and which is generalisable to other educational institutes. An explorative literature search shows that existing studies are based on single case studies, mostly at educational institutes in the U.S., which lack generalisation and may not be useable for other educational Institutes. As Picciano & Dziuban (2007) explain, "blended solutions are often specific to a particular institute and may not be transposable to other institutes" (p.11). Accordingly, this present explorative study will generate extended research offering academic relevance as it adds prescriptive knowledge to the current knowledge gap on encouraging adult-learners with online content that is generalisable to other institutes. This present pilot case study is an explorative one, and

part of a larger study aimed at leveraging adult-learners with online content. Therefore, a first understanding of factors engaging adult-learners with online interaction is needed.

PRELIMINARY LITERATURE REVIEW

In this preliminary literature review two dominant factors that have been indicated as causes for impairing student interaction with online content at higher education institutes are investigated, namely under-representation of supportive modes (social online presence), and lack of convergence. Additionally, these two common causes need to be considered in relation to adult-learners, since this present pilot case study serves as a first orientation into the lack of online interaction among adult learners specifically. Henceforth, a basic understanding needs to be had on the concept of ‘adult-learners’.

Social Online Presence: Supportive Modes

Moore (1989) explains that when students learn, three modes of interaction are present: student-student interaction, student-teacher interaction and student-content interaction, the salient mode being student-content interaction for without it there is no education. The key element in the methodology of blended learning appears to be interaction with online content (Abrami, Bernard, Bures, Borokhovski & Tamim, 2011), the other two modes, student-teacher interaction (Kehrwald, 2008; Persico, Pozzi & Sartie, 2010; Dixson, 2010), and student-student interaction (Abrami et al., 2011), being the supportive modes. Both supportive modes are also referred to as ‘social online presence’ in a meaningful way (Kehrwald 2008): student-student interaction (social online presence, peer) and student-teacher interaction (social online presence, teacher). Student-student interaction, frequently referred to as online collaboration, is largely dependent on the role the teacher plays (van Leeuwen, 2013). Kaendler, Wiedmann, Rummer & Spada (2014) explain that teacher competences are necessary for the successful implementation of implementing collaborative learning, one that can be acquired through training. It seems, therefore, that the teacher’s social presence cannot be removed from the social presence of peers, or, indeed, from successful online collaboration (Onrubia & Engel, 2012). Under-representation of the supportive modes can result in students failing to spend time interacting online (King & Arnold, 2012).

Convergence

Lack of convergence occurs when the overall activities and content are not categorised (Murray, Jones & Pelps, 2016), into f2f and online delivery modes. Murray et al., (2016) add that f2f interactions should work synergistically with the online activities since that is when online and f2f learning truly converges. King & Arnold (2012) further explain that for convergence to be effective higher-order and lower-order activities must be organised into the most well-suited delivery mode (f2f or online). When online content and activities are not in synergy with f2f content and activities, students will not see the relevance of spending time online and accordingly refrain from online interaction (Murray et al., 2016).

Adult-Learners

Snyder (2009) explains that “most literature on blended learning has been written with respect to traditional students but assumed to apply equally to adult-learners” (p.48). In the case of adult-learners it would seem more appropriate to think in terms of andragogy or other adult-learning theories, an approach directed at learners who, inter alia, have the

life experience needed to self-direct and self-manage (Chametzky, 2014). Whilst the term 'andragogy' is not a new one, it was revived through Knowles' (1984) definition, one that Merriam, Caffarella, and Baumgartner (2007) explain as being based on a set of assumptions, that, in short, include 1) self-directedness, autonomous, and independent; 2) the role of experience in learning; 3) readiness to learn what they need to know; 4) learning for application of learning content rather than for future use, being problem-centred and life-focussed; 5) internally motivated; 6) a need to know the value of what it is they are learning. Other adult-learning theories that appear to surface most often are the theory of self-directness (see e.g. Zhang & Zheng, 2013), experiential learning, and transformational learning (see e.g., Cercone, 2008)). Zhang & Zheng (2013) explain that adult-learners who are independent and internally motivated need an instructor to act as facilitator. Whilst there are many theories on adult-learning, a discussion that is still current, all theories emphasise self-direction, flexibility, and the process of learning, rather than the content. They are learner-centred and recognise the importance of a customised approach to learning.

Adult-learners come from traditional education backgrounds and may not have learning experience with blended learning where learning occurs in part online. As such, Pappas & Jerman (2015) define the needs of adult-learners as one of coaching.

The present study

To remedy the lack of online interaction among adult-learners, the causes related to such lack need to be understood and verified first. Hence, the aim of this present study, which embodies a pilot case study, is to seek validation of claims made in literature relating to said causes for lack of online interaction as it relates specifically to adult-learners, and which will forthwith inform the direction in which subsequent research should go: necessary steps to close the knowledge gap on leveraging adult-learners with online content.

Since, according to said claims in literature, online interaction seems dependent on, among others, social online presence and convergence, the research question in this study is:

To what extent do social online presence and convergence play a role in adult-learners' online interaction at the Institute of Archimedes?

METHODOLOGY

Research setting

A pre-explorative study conducted among 50 students (van der Stap, 2017) has shown that adult-learners barely interact with online content. As a result, this pilot case study intends to explore adult-learners' lack of online interaction with learning content at the Institute of Archimedes in relation to findings from the preliminary literature review. Additionally, the pilot study not only serves as a means of further exploration, but also serves to assess the proposed data analysis techniques, and to uncover potential problems (Holloway, 1997) before further case studies are embarked upon. For this pilot case study a mixed method approach was applied, hence a closed-ended questionnaire was developed, and interviews were held with adult-learners. In this mixed method approach a convergent design was carried out which compares both qualitative and quantitative data sources simultaneously. Parallel constructs for both types of data was used whilst data was analysed separately. The results were compared side-by-side and are followed up by a

joint-discussion. The mixed-method approach enabled the gathering of qualitative data to assess personal experiences (Creswell & Plano Clark, 2011), whilst also gathering data from questionnaires measuring the quality of blended education. As such, the potential strengths of both qualitative and quantitative methods are drawn upon.

Participants and data collection

Questionnaire

The participants to the questionnaire were a conveniently sampled selection of part-time students of the Institute of Archimedes, totalling 33 students. The part-time students in this study are the adult-learners referred to in the preliminary literature review. The students that were approached claimed to have no personal study experience with blended learning and their mean age was 39 years ($SD=9.3$), as taken from the student-registration programme.

A closed-ended questionnaire was developed since close-ended questions enable quick comparisons of answers between students (Cohen, 2013). The questionnaire was based on a four-point Likert-type scale, aimed at obtaining an overview of students' reasons for online interaction. A four-point scale was favoured over the traditional five-point scale since a 'forced option' was sought after, as it has been observed that respondents who are not willing to express an opinion one way or the other can escape by answering 'neutral', and henceforth divert the results. With a large number of participants such 'neutral' choices can easily be eliminated from the data. However, since in this study only 33 students were asked to participate, it seemed logical to avoid having to eliminate results from data and, as such, the rating used is not a Likert scale, but a Likert-like scale. In any event, there is much discussion about the rating of Likert scales proper, since the distance between each successive item category is not equivalent, neither in a four-point scale, nor in a five-point scale though the latter is often inferred. Clearly, a score of 'agree' and 'strongly agree' is not 'agree-and-a-half'. As such, the use of averages cannot account for the importance of capturing and understanding variability. Henceforth, no averages were calculated.

In this questionnaire questions were phrased using both positively as well as negatively worded items. This approach cancels out acquiescence bias (Robinson, Shaver, & Wrightsman, 1991), where respondents might prefer to avoid looking at the negative side of any issue. Whilst it is noted that respondents might favour a positive outcome over negative response options, this study is specifically aimed at uncovering why students do *not* interact with the online environment. This aim has been clarified to the respondents both in writing as well as verbally. Restricting the data acquisition to solely positive constructions was determined to be at odds with the goal of unveiling negative factors and therefore both positive and negative constructions were included in the questionnaire.

The questionnaire had a total of fourteen questions, investigating seven variables. Each question in the questionnaire was phrased twice, using different words, in order to increase construct validity (Cohen, 2013), as this construction double-checks the answer to the earlier question to which it is paired. The questions related to a set of variables in correspondence to the two factors as set out in theory from the perspective of the adult-learner, namely social online presence (teacher-student interaction and student-student interaction), and convergence.

To further increase construct validity, after the first construct of the questionnaire, the questions were discussed with a focus group and adjustments were made upon which new discussions were held with focus groups followed by further alterations. The questionnaire was given to a pilot group of eight students, after which adjustments were made to the questions. This process was repeated three times, i.e. the questionnaire was piloted three times, until no alterations were deemed necessary. The final version of the questionnaire was followed up with retrospective interviews with six of the participants.

Further reliability results from internal consistency, where the various multi-scale items used in this questionnaire are shown to be homogeneous, in that they measure the same target area. This questionnaire has fourteen questions relating to seven variables, and has been answered by 33 participants. Since such a small number of items and scales in relation to students' answers needed to be calculated, these items were tallied manually together with a co-researcher. The double-checking by the researcher allowed the researcher to be reasonably confident about the internal validity of the questionnaire. Any calculations relating to internal consistency using methods such as Cronbach Alpha would require a much larger sample size for analysis to be meaningful, a sample size being dependent on the number of participants, number of questions and number of multi-item scales (Yurdugül, 2008). Since in this study a limited number of questions were asked of a relatively small number of respondents, using only a four-point Likert-like scale, the resulting data set was deemed too small to provide any meaningful returns using such statistical analysis programmes.

The questionnaire was conducted during lessons in order to increase the number of respondents and to avoid bias whereby students that actually do interact online might feel more encouraged to complete the questionnaire. Additionally, to further increase validity, six students were interviewed after having completed the questionnaire to ensure that the answers given were in fact the answers they had intended to give. Such retrospective interviews ensure comprehensiveness and systematicity (Gass & Mackey, 2000). Written informed consent had been obtained from all the students and full anonymity was guaranteed to the students beforehand after explanation of the questionnaire and the study at hand. The students took an average of ten minutes to complete the questionnaire. Since the questionnaire was conducted in class, the return rate was 100%.

A total number of 32 students were included in the questionnaire, since one student was eliminated (see further Chapter 3.3). This in itself is rather a small number of students, however, the current pilot case study seeks only to validate claims from literature and thus the findings are not intended to be generalisable to a wider population (Cohen, 2013). In this case, therefore, convenience sampling was applied to approach the group to which quickest access was had, since the parameters of generalisability are negligible here (Cohen, 2013).

Interviews

In addition to the questionnaires, online interaction over several courses was observed so that it became clear which students were active online and which students were not active online. Henceforth, a stratified sample of ten students (five active, five inactive) were randomly selected from a pool of 600 students. The selected students were unknown to the researcher, accordingly purposive sampling here was undertaken, for the students that are inactive online are seen as 'critical cases' (Teddlie & Yu, 2007) that can yield insights that might have a wider application. No generalising statements are made yet in this

context, since the results only serve in achieving an understanding of the phenomenon of 'online interaction or the lack of it' as explicated in the preliminary literature review. Any selection made therefore, concerns a choice of two groups, both with one and the same characteristic, namely online interaction or the lack of it, hence no bias was involved.

The interviews were semi-structured to increase reliability since the structure and types of questions were the same for all candidates, whilst at the same time leaving scope for further questioning when deemed necessary (Keith, 1988). The interview questions were first discussed in two focus groups to validate the construct and analysed in relation to the variables to ensure content validity. The interview protocol was designed around a set of inductively acquired, predetermined open-ended questions, which allowed the interviewer to ask for more in-depth clarification (Cohen, 2013). The protocol focussed on adult-learners' leverage with online interaction, the two main themes being social online presence and convergence.

Accordingly, ten students were invited for semi-structured interviews: five students that were active online, and five students that were not active online, whereupon the answers of both groups were compared. After the first five students it became clear that saturation had been reached (Straus & Corbin, 1994), i.e. until students' various answers had become repetitive. Whilst it had already become clear that answers repeated themselves, the students had already been invited, so the interviews took place nevertheless. In order to achieve familiarity with the content prior to analysis, the researcher transcribed all the interviews.

All participants were interviewed by the researcher of this study. Each interview lasted between 10 and 30 minutes, with an average of twenty minutes. In order to avoid desirability bias (Cohen, 2013), prior to each interview, the interviewer ensured the participant that all names would be anonymised, that there were no right or wrong answers, and that data would be treated and reported confidentially. Two interviews (one pertaining to an active student and one to a non-active student) could not be transcribed and analysed due to the poor quality of these audio recordings. Since the division of active and non-active students remained equal, no new interviews were held, hence eight students remained in the study. All students were of the same level, had no personal learning experiences with blended learning and their mean age was 41 years ($SD=9.4$), as taken from the student-registration programme.

Data analysis

Questionnaires

The first step in analysis was to "clean the data" (Gillham, 2000). In this instance data cleaning involved correcting contradicting data. From the 33 students, one student was inconsistent with answers, 'agreeing' on one item and 'disagreeing' on the second item to which it is paired. To remedy this, it was decided with a co-researcher to remove the illogical combination this student produced. Hence, to maintain reliability, the student was eliminated from the questionnaire altogether. No other contradictions were found as all the other students were seen to be consistent with their answers, the only variations being between the degree upon which students either agreed or disagreed.

The parallel questions were added to the questions they were paired with and the results were totalled, giving an overall score of 64 responses per paired item. Accordingly, the total score was halved to account for the actual number of participants (32). Since this can result in a score of 5.5 students for a given item, the scores were reverted to percentages in relation to the variables. No other calculations were made as only the frequency table was used due to the fact that calculations based on any averages and standard deviations would give unreliable results when using a four-point Likert-like scale. The results were double-checked by a co-researcher.

Interviews

Content analysis was applied to the interviews in order to avoid harmful effects of rater subjectivity (Brown, 2000). In order to carry out such analysis, the interview transcripts were coded using open-coding with Atlas.ti, since an exhaustive theoretical framework was yet to emerge from subsequent systematic literature studies. The first researcher checked the codes twice, relabelled them, and refined the codes by re-reading the transcripts several times (Cohen, 2013). A co-researcher checked the emerged coding scheme and applied them to four randomly chosen scripts, after which codes were added and some removed. Emphasised and repeated quotations were coded accordingly. The researcher and co-researcher openly discussed the coding strategy, upon which the second coder independently analysed all eight scripts, after which inter-rater reliability was calculated. Percent agreement for the overall coding was 87,5% (seven out of eight cases). Miles and Huberman (1994) explain that minor differences in outcome are considered good inter-coder agreement. After coding, the various disparities were discussed by the two independent coders until agreement was reached.

After the coding process, the codes were categorised, through deductive reasoning using sensitising concepts to guide the analysis (Straus & Corbin, 1994), forming broader categories to describe the content of the response in such a way that comparisons with other responses was facilitated. As only eight students were interviewed, the categories were not numerically coded since such an undertaking would unnecessarily consider the data as quantitative rather than qualitative data. Each category was summarised together with the independent co-researcher. Accordingly, the summaries were drawn together and emerging patterns were analysed after which two salient themes became apparent in relation to the specifics of adult-learners, namely teacher's social online presence and convergence. All conclusions were drawn together with the co-researcher.

RESULTS

Results questionnaire

In the questionnaire the online environment is referred to as "HUb1" (HU blended learning). Students are familiar with this term and might be confused if the term 'online environment' were used. The paired questions are placed together in table 1, showing the results:

	Question	Strongly agree	Agree	Disagree	Strongly disagree
1	I skip the learning team assignments in HUBL because no-one gives peer-feedback	2	8	15	7
9	I ignore the assignments in HUBL because I get no peer-feedback from my learning team	3	7	16	6
2	I carry out the assignments in HUBL because I need them in preparation for the f2f meetings	2	6	13	11
6	Since I need the assignments in preparation for the f2f meetings, I carry them out	3	5	13	11
3	When I find that most assignments in HUBL lack relation with my professional practice or the tests, I skip them	7	19	3	3
11	I skip the assignments in HUBL when I find that they are unrelated to the exam or my teaching practice	6	20	4	2
4	The reason I would skip assignments in HUBL is because the teacher does not give feedback on them	9	15	4	4
8	When no teacher feedback is given on HUBL assignments, I skip them	10	14	6	2
5	If I ignore the learning content in HUBL, I will have difficulty following what is dealt with in the f2f meetings	5	10	11	6
12	It is difficult to follow what is dealt with in f2f meetings when I have not studied the learning content in HUBL beforehand	6	9	12	5
7	The content in HUBL and the f2f meetings are the same, so I attend either the f2f meetings, or learn the content in HUBL	10	14	6	2
14	I either attend f2f meetings, or I study the learning content in HUBL because they are the same	7	17	6	2
10	I ignore assignments in HUBL when no attention is given to those assignments during f2f	13	17	2	0
13	If the HUBL assignments are not brought up in f2f meetings, I will skip them	11	19	2	0

Table 1: Results questionnaire

The results of the answers have further been calculated in comparison to their variables (table 2), where the ratings in which students can agree or disagree have been merged in overall agree or overall disagree.

Variable	% agree N=32	% disagree N=32
Assignments in HUbl are not carried out when there is no peer-feedback	31	69
Assignments in HUbl are needed in preparation for the f2f meetings	25	75
Assignments in HUbl are not carried out when there is no relation to professional practice or tests	81	19
Assignments in HUbl are ignored when there is no teacher-feedback	75	25
Studying learning content in HUbl is necessary in preparation for the f2f meetings	47	53
Learning content in HUbl is repeated during f2f meetings, so only one is attended to	72	28
Assignments in HUbl are not carried out when no attention is given to them during f2f meetings	94	6

Table 2: Results variables**Results interviews**

When analysing the eight interviews, some additional themes, other than the ones in line with the preliminary literature review, related to students' preferences. These themes were 'structure of the Learning Management System (LMS), and 'preference of online content presentation tools'. In relation to the structure of the LMS, the students felt that the online environment was not always clear in structure and not always up to date which did not necessarily prevent them from interacting online, but did serve as a discouragement. Additionally, a majority of students preferred the online content to be text-based rather than film clips, web lectures (unless accompanied with a text) or Prezis. These themes need further research in order to draw conclusions and will be left out of this present study, since the present study seeks to validate claims in literature as related to the themes of 'social online presence' and 'convergence' from an adult-learning perspective.

Nine categories, additional to the ones mentioned above, and arrived at through deductive reasoning using sensitising concepts to guide the process (Straus & Corbin, 1994), can be related to the themes from the preliminary literature review 1a) relevance of assignments, 1b) lack of relevance of assignments, 2a) convergence of content, 2b) lack of convergence of content, 3a) convergence of assignments, 3b) lack of convergence of assignments, 4a) social online presence teacher, 4b) social online absence of teacher, 5) social online presence peer. Accordingly, these nine categories were matched with students' reasons for (not) interacting online and (not) attending f2f meetings. Some overlap between the categories became apparent. These nine categories can be mapped to the themes of convergence and social online presence from an adult-learner's perspective.

In relation to the first and second category ‘assignments are (not) relevant’, no students would carry out assignments that were irrelevant. They all would, however, carry out assignments if they were related to tests or practice, or would enhance their knowledge or expertise of a given subject. Assignments without such relation were considered to be “lame” and “meaningless”. In relation to the third and fourth category (lack of) convergence of content, all the students felt that ‘repeating online content during f2f meetings’ was a “waste of their time”, for which they “did not have to drive all the way to the University” and would rather “self-direct what is needed to learn”. Nevertheless, “sheer obedience” or a “keen interest to learn” were reasons to attend regardless, for at least two students (the ones that were active online). For two students this was a reason not to study online content altogether. With regard to the fifth and sixth category, (lack of) convergence of assignments, all the students unanimously agreed that “f2f meetings should add to the content in the online environment”, preferably in the form of “discussing assignments”. This was a reason for them to both study online and to attend f2f meetings.

All the eight students expressed that “assignments that would receive teacher feedback “will be carried out”, whereas assignments that did not receive teacher feedback were not carried out by at least six students. The two students that would still carry out assignments despite the absence of teacher feedback were students that were active online. With regard to the seventh and eighth category, the social online presence or absence of the teacher, all the students reported that “if assignments did not receive attention during the f2f meetings they would not be carried out”, whereas if they were “discussed during f2f meetings” they would all carry them out. The only difference between the active students and the inactive students was that active students interacted online out of “sense of obligation” and “obedience”. With regard to the ninth category, social online presence of peers, none of the students felt that lack of peer-feedback inhibited their online interaction and/or f2f attendance. All students reported, however, that they would prefer not to collaborate online, but “rather prefer to work independently and alone”.

Comparing results questionnaires and interviews

The variables of the questionnaire and the categories as they relate to the interviews, although slightly different in construction due to the differences in question-type and sequence, can both be mapped onto the themes in relation to the preliminary literature review, namely convergence and social online presence (student-student interaction and teacher-student interaction), from an adult-learner’s perspective.

In order to logically compare the results of the questionnaire and the interviews, the results of the questionnaire, for the sake of such comparison, have been grouped into ‘agree’ and ‘disagree’ in relation to their variables, regardless of the degrees according to which students agreed or disagreed. This merger is justified based on the fact that the 32 participants that were included in the questionnaire were consistent with their answers throughout as far as agreeing/disagreeing on the multiple-scale items is concerned. It follows logically that a participant who strongly agrees to a statement, agrees in any event, and vice versa.

There are some minor differences between the questionnaire and interviews, which by and large are due to the different question strategies which flow naturally from questionnaires using a Likert-type scale and semi-structured interviews. Morgan (1998) explains that a move away from reporting the findings and questionnaires in order to consider the meta-themes, is considered a “third effort” and a necessary one, since it occurs after analysis of

the qualitative and the quantitative components in order to make general conclusions that summarise both.

Accordingly, the results clearly overlap as they relate to the so-called meta-themes, which in this study are identified as ‘convergence’, and ‘social online presence’ (teacher and student). Students meet repetition of the online environment with great chagrin, which results in either not attending the f2f meetings, or not studying the online content. With regard to carrying out online assignments, in this study most students do not carry out online assignments if no attention is given to them either in terms of teacher feedback, or during f2f meetings. Even the students who are active online explained in interviews that despite their willingness to “do as is expected”, time pressure may push them to make choices as to which assignments are carried out and which assignments are ignored. Choices then are made based on whether or not “meaningful attention is given to the online assignments during f2f meetings or feedback from the teacher”. As far as social online presence is concerned, the absence of the teacher’s social online presence is considered more problematic as compared to the absence of peers in the online environment.

DISCUSSION

Some limitations pertain to both the size of the respondents to the questionnaire, as well as possible bias. The size of the group of respondents consists of only 32 students, whereas the entire population at the institute alone accounts for over 600 students. Nevertheless, the group that have completed the questionnaire do not represent this wider population since no generalisations are made beyond the actual group. The present pilot case study is intended to validate claims in literature pertaining to lack of online interaction. With such validation in hand, the results from this pilot case study will then simply serve as a direction that subsequent research should follow in terms of systematic literature reviews and case-studies. Furthermore, while care has been taken to avoid any bias, it cannot be ignored that negatively worded questions can result in biased answers in spite of the above-mentioned justification. Whilst stating the same question twice but worded differently might somehow lift this bias, the results of the interviews would need to be considered in comparison with the results of the questionnaire.

Although social online presence directly influences students’ online interaction, in this study a lack of convergence (Murray, et al, 2016) seems to be the major culprit. Repeating online content and ignoring answers given to online assignments (of which students feel should be the focus of the f2f meeting) is a reason for not carrying out online assignments. This is obviously a problem, because carrying out assignments should help students understanding learning content.

Another aspect that became apparent in this study was the aspect of students’ social online presence. The lack of student-student interaction was less of a problem as compared to the lack of teacher-student interaction. In fact, students explain that they rather work alone in the online environment whilst appreciating collaboration in the form of discussions during f2f meetings. The desire to work alone in the online environment as opposed to collaboration could possibly stem from the type of assignments that have been designed. Additionally, it appears that the lack of a teacher’s social online presence becomes

problematic when assignments receive no form of online feedback or no further attention is given to them during f2f meetings.

Lastly, in this study it was shown that students, being adult-learners, felt that assignments should not only have a relation to tests, as might indeed be the case for all students, including non-adult-learners, it should also strongly relate to their professional practice and leave room for “working independently”, “self-management”, and “ability to self-direct”.

IMPLICATION TO RESEARCH AND PRACTICE

The present study explored claims made in literature pertaining to causes for lack of online interaction, since a preliminary study had revealed that adult-learners hardly interact online. Accordingly, a questionnaire was carried out and interviews were held among adult-learners to ascertain the causes for such lack of online interaction. The results hold three important implications to both research and practice. The first implication is that students by and large refrain from online interaction when there is no convergence, i.e. in this study when online content is repeated in the f2f environment and when online assignments are not synergised with f2f activities (King & Arnold, 2012). The results from this study could be used as a first point for instructors reflecting on the needs of their adult-learners, and their own approach to following-up on online content and activities. Additionally, with the knowledge that students feel encouraged to engage with the online environment when the teacher is socially present, instructors could adjust their approach to their teaching practice.

The second implication relates specifically to instructional designs. Whilst studying the intricacies of instructional designs is an endeavour that will be undertaken in a subsequent systematic literature review, it should be noted that research should not only investigate what such an instructional design should precisely entail, but also how this can be adopted at institutional level. In an ideal situation implementation of blended learning relies upon a thorough knowledge and understanding of students’ needs, the institutes’ aims and values, and the requirements of the curriculum, since implementing blended learning on a large scale is an aspect that affects the entire curriculum (Anderson, 2004). Research on institutional implementation (e.g. Graham, Woodfield, & Harrison, 2013) could be a starting point for such an undertaking.

A third implication directly relates to the limitations of this study. This study was designed to validate claims in literature pertaining to causes of lack of interaction as it relates particularly to adult-learners. The size of the group, however, does not allow for generalisations beyond the group itself. In order to be able to make generalisations, a large-scale case study should be carried out, not only at the institute itself, but also at other institutes and universities. Such a case study should follow the Case Study Protocol (CPS) designed by Maimbo & Pervan (2005) to facilitate the carrying out of case studies across several institutes and universities, and which entails a set of rules that regulate the conduct of the researcher. The CPS as such ensures that the multiple case study is carried out in such a manner that generalisations to a wider context are valid and reliable.

From explorative literature searches, no multiple case studies on leveraging specifically adult-learners with online content have yet been undertaken. Indeed, no instructional designs on blended learning for said target group, one that is transposable to other

universities, has yet been designed. Whilst this study is an explorative pilot case study, it is a necessary first step of a larger-scale study that involves systematic literature reviews, multiple case studies and an iterative design process to arrive at an instructional design model on blended learning that not only closes a current knowledge gap on leveraging adult-learners with online content, and on instructional design theory, but could also contribute to improved blended learning education across universities.

CONCLUSION

In this study, the findings from the questionnaire and interviews by and large validate the results from the preliminary literature review whereby the themes, exposed as being causes for lack of interaction, correspond. Moore (1989) explains that there are three modes related to student engagement, namely student-student interaction, student-teacher interaction, and student-content interaction, the latter being supported by the two former (Kehrwald, 2008; Persico, Pozzi & Sartie, 2010; Dixson, 2010, Abrami, et al., 2011). It seems from this study that the lack of student-student interaction does not play a role in whether or not to interact online. On the contrary, it appears to be an obstacle for students as they would rather work alone. However, it is too soon to draw such a conclusion since it is possible to assume that students have not yet been exposed to the different, perhaps more suitable types of activities in relation to student-student online interaction. Additionally, the teacher's role in relation to online collaboration has not yet been examined in the questionnaire and interviews, whilst it is said to be imperative for successful student-student interaction (Kaendler, et al., 2014). Lastly, it should be noted that adult-learners have been educated in the traditional manner and are not accustomed to online collaboration, therefore adult-learners need coaching (Pappas & Jerman, 2015).

Furthermore, students feel that the teacher's social presence in the form of feedback is missing, the absence of which results in not carrying out online assignments. This may be partly due to students not yet understanding the dynamics of online learning content and activities in relation to f2f learning content and activities, since at this point students are of the impression that f2f meetings are mostly a place and means for receiving teacher feedback when none such is given online. In the absence of convergence between the online delivery mode and the f2f delivery mode, content and activities are not fully synergised (Murray, et al., 2016), resulting in doubling of online content and activities during f2f meetings on the one hand, and a void of meaningful follow-up activities during f2f meetings on the other.

FUTURE RESEARCH

According to the preliminary review in this study, the main causes for lack of online interaction are lack of convergence of content and activities between online and f2f delivery modes, and lack of social presence of both peers and teacher. In this study these claims were corroborated, except for the claim 'social presence of peers', frequently referred to as 'online collaboration'.

Further research will have to show the manner of said convergence, i.e. the type of activities suitable for the online environment and those suitable for f2f meetings, as each should be delivered in the appropriate delivery mode, and categorised according to higher-order and lower-order activities (King & Arnold, 2012). Equally, further research is needed here to unveil the type of online assignments that are of interest to the adult-learner

in terms of collaboration. Additionally, further research will have to show whether the obstacle of ‘not giving online assignments attention’ overshadows other obstacles that have at this point not yet surfaced. Most of these students come from traditional educational backgrounds (van der Stap, 2017) and have the tendency to consider the LMS as a File Sharing System, treating a dynamic learning environment as a static one whereby online material is printed out and assembled by the students into a self-made reader. Furthermore, further research will have to show to which extent a teacher should be present in the online environment and his or her role in online collaboration.

This study pertains to adult-learners, therefore further research into adult-learning theories will have to show if such interpretation can be validated and what type of assignments are suitable for the online environment that ‘make sense’ to the adult-learner specifically. Assignments then should not only relate to the adult-learners’ professional environment, but also to the specific characteristic and needs of adult-learners, one which does justice to, inter alia, adult-learners’ experience, self-management, self-direction, and self-regulation.

Results from this pilot case study show a clear direction into which immediate systematic literature reviews should move. However, a further systematic literature review should explore different instructional design models in order to arrive at designing a model that leverages adult-learners’ interaction with online content.

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