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Factors Affecting Language Academics' Attitudes towards Computer Assisted Language Learning (CALL)

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Abstract

Despite the known benefits of Computer Assisted Language Learning (CALL), evidence from existing literature still indicates that many language instructors have a negative attitude towards it. There are many possible factors behind this negative attitude, and the aim of this study was to devise a theoretically sound conceptual model of these factors. The methodology used by this study for the achievement of its aim was to review existing literature published during the past twelve years on CALL attitude factors. The conceptual model proposed by this study posits that instructors' attitude towards CALL is dependent on the following factors: demographics; computer usage; language teaching ability; prior CALL usage; and Technology Adoption Model (TAM) related factors. One of the biggest gaps identified from this literature review was that English seems to be the only language that is being probed by existing research on CALL attitude factors.

Introduction

The purpose of this introduction is to highlight some of the core benefits of CALL, and provide some background definitions associated with this term. Thereafter, the problem statement for this study is formulated, prior to the presentation of its aim and objectives. The paper will then

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present its methodology, as well as its findings, and will end with a discussion section and conclusion.

The field of CALL came into existence almost 50 years ago (Heift and Schulze, 2015) and it draws from many other fields, including Computer Assisted Instruction (CAI), Educational Psychology, Artificial Intelligence (AI), Computational Linguistics, Instructional Design, Human Computer Interaction (HCI), Second Language Acquisition (SLA), and Web Based Instruction (WBI) (Vula, 2017). As a result, Kumaresan *et al*. (2012) posit that CALL is an inherently multidisciplinary and rapidly evolving field which explores the role of Information Communication Technologies (ICTs) in language learning and teaching. According to Beatty (2013), the CALL field is constantly undergoing changes because technological innovations are creating opportunities to revisit old findings, conduct new research, and challenge established beliefs about the ways in which teaching and learning can be carried out, both with a human teacher and without one.

For Hubbard (2014), the term CALL is associated with several synonymous variations including Computer-enhanced Language Learning (CELL), Technology-enhanced Language Learning (TELL), Technology Assisted Language Learning (TALL), Computer Assisted Language Instruction (CALI), Computer-based Language Training (CBLT), Network-Based Language Teaching (NBLT), Digital Language Learning (DLL), Mobile Assisted Language Learning (MALL) or Multimedia Assisted Language Learning (MALL), and so on. These synonymous

variations of CALL can be divided into two categories: the first category includes CALL, CELL, CALI, and CBLT, and focuses on the use of computers for language teaching and learning; as for the second category, it opens up language teaching and learning to the wider technological spectrum and includes TELL, TALL, NBLT, DLL and MALL.

The term CELL (Computer-enhanced Language Learning) and the term CALL (Computer Assisted Language Learning) suggest that the role of the computer in language education is to enhance language learning; in other words, to make language learning better (Hubbard, 2014). As for the term CALI (Computer Assisted Language Instruction) and the term CBLT (Computer-based Language Teaching), they implicitly suggest that the use of computers in language education should focus more on language teaching rather than on language learning.

On the other hand, the terms TELL (Technology Enhanced Language Learning), TALL (Technology Assisted Language Learning), and DLL (Digital Language Learning) all suggest that modern language learning is not only enhanced by computers, but is also enhanced by many other technologies (Hubbard, 2014). As for the term NBLT (Network-Based Language Teaching), it implicitly suggests that the role of computer networks, computer-mediated communication, and the Internet in language education should focus more on teaching rather than on learning. With regards to the term MALL (Mobile Assisted Language Learning), it suggests that the use of mobile devices such as mobile phones, tablets, and mp3 players in language

education should focus more on learning rather than on teaching.

The above various definitions and illustrations of CALL indicate that CALL is beneficial to both language teaching and learning.

The herewith presented benefits of CALL were identified from Nim Park and Son (2009), Alkahtani (2011), Khamkhien (2012), and Anwar and Arifani (2016). According to Nim, Park and Son (2009), one of the benefits of CALL is that it saves time for instructors, as they do not need to write on a blackboard, as well as giving instructors the ability to offer interesting lessons to language students which are full of authentic pictures, images, animations and video clips in the language classroom. Alkahtani (2011) also identifies that the use of CALL by instructors enhances their language skills, such as listening, pronunciation, reading, writing and vocabulary. In the same vein, Khamkhien (2012) posits that CALL can assist teachers in providing easy and rapid access to a variety of language learning resources and multimedia components of dynamic and authentic input in all areas of language which they could not offer without additional teaching aids. Anwar and Arifani (2016) also found that one of the benefits of CALL for instructors is its ability to assist them in facilitating the process of language learning, as well as its ability to reinforce the lesson that has been taught in the classroom, thereby acting as a repair tool for students who need additional support.

Despite the great benefits which CALL offers to teaching and learning, there seem to be some challenges with which it is faced. According to Lee (2000), Prathibha (2010), Abuseileek (2012), and Hani (2014), the main challenges of CALL are financial barriers, knowledge barriers and education stakeholders' (e.g. instructors) negative attitudes towards technology. Financial barriers here refer to the initial cost of CALL hardware and software, as well as the cost of their maintenance. This is especially true due to frequent software upgrades. As for knowledge barriers, one of the challenges of CALL is that the vast majority of instructors are unable to use it properly and are not conversant with how to integrate it into their teaching strategies. This therefore calls for more staff development, and hence contributes to further financial costs. Prathibha (2010:69) also reports that "there is a shortage of knowledge about developing software to promote learning".

Evidence from existing literature seems to indicate that, amongst the challenges identified above, instructors' negative attitude towards technology can be considered as one of the biggest challenges of CALL. For example, Hani (2014:1613) quotes) in reporting that instructors are afraid of CALL because they see it as a threat to their jobs. Dina and Ciornei (2013:252) also claim that instructors exhibit a negative attitude towards CALL because they strongly believe that it is merely technology, and that technologies can never replace human beings as instructors. As for Abuseileek (2012), the perceived inability of CALL to replace textbooks also contributes to instructors' negative attitudes towards CALL. Negative attitudes towards CALL also sometimes

emanate from its association with computer games (Hani, 2014).

The above highlighted benefits and challenges of CALL can be summarised by the following claim, which constitutes the problem statement of this study: language instructors have a negative attitude towards CALL despite all its potential benefits to learners and instructors themselves. Hence, the aim of this study is to present a theoretical model of the factors which affect language instructors' attitudes towards CALL.

Methodology

The model proposed for this study was designed based on a review of existing literature on factors which affect language instructors' attitudes towards CALL. This study relies on existing literature in order to gain a broader understanding of the previous research conducted on attitudes towards CALL, which is then used to assist the author to position this research to build upon prior knowledge. This literature review is restricted to papers published during the past twelve years (2007-2019), and these papers were collected from Google Scholar. The keywords used for the Google Scholar search were: "teachers' attitude towards CALL"; "academics' attitude towards CALL"; "instructors' attitude towards CALL"; "learners' attitude towards CALL"; and "attitude towards CALL".

Research Findings

The purpose of this section is to summarise the results of the preliminary literature review conducted by this research on

existing studies on the factors affecting language academics' attitudes towards CALL. The following features of the nineteen (19) studies found by this review are hereby briefly presented: authors and publication years; continents and countries; sample sizes and research populations; research instruments; analysis methods; and findings.

Authors and publication years

Sixteen (16) different names are cited as the first authors of the nineteen (19) papers for this preliminary review. Rahimi and Arishi are the only two researchers who are the first authors of more than one of the papers which are included in this review. In fact, Rahimi is the first author of three (3) papers and Arishi is the first author of two (2) papers. This seems to indicate that only a few researchers can be considered as research specialists for the study of attitudes towards CALL. As for the publication years, almost half (42%) of the reviewed studies were published between the years 2013 and 2017, and the other half (53%) of the papers were published between 2008 and 2012, with only one paper being published in 1986. This seems to indicate that the reviewed papers are quite recent, and the CALL research field is still in its inception stage.

Continents and countries

All nineteen of the studies in this review were conducted in six (6) different countries namely: Iran, Saudi Arabia, Malaysia, Indonesia, Turkey and the USA. This seems to indicate that there is more enthusiasm for CALL research on the Asian continent compared to other continents. It is also

interesting to note that the African continent is not represented by the above-listed countries, and this alone can serve as a source of motivation for conducting the current study.

Sample sizes and research populations

The smallest sample size for the studies included in this review is thirty (30) and the largest sample size is two hundred and ninety-eight (298). The sample size of nine (9) studies is smaller than eighty-two (82), one study has a sample size of eighty-four (84), another study has a sample size of one hundred (100), and the sample size of eight (8) studies is larger than one hundred (100). A sample size of thirty (30) seems too small if one agrees with the following quote by Onwuegbuzie and Leech (2005:282), which states that "a minimum sample size of 82 is desirable in order to attain sufficient statistical power (i.e., 0.80) to detect a moderate relationship (i.e., r ¼ 0.30) between two variables (i.e. statistical significance) at the 5% level of significance". On the other hand, the sample sizes of only eight (8) of the above-mentioned studies are truly acceptable if one agrees with the sample size recommendations from Gorsuch (1983) and Kline (1979) as cited by MacCallum *et al*. (1999) who "recommends that [sample sizes] should be at least 100". The research populations of the nineteen studies presented by this review are made up of English-speaking instructors.

Research instruments

More than a third of the studies in this review collected their data using Vandewaetere and Desmet's (2009) scale to

measure attitudes towards CALL. Almost a quarter of the reviewed studies used their own scales to measure attitudes towards CALL, and the other half used scales from various sources, such as: Loyd and Gressard (1984); Yao et al (2009); Onsoy et al (2005); Browne (2008); Alshumaimeri (2008); Norton (1975); Gardner and Smythe (1975); Viswanathan (2009); and Jalali and Ardebili (2013). This seems to indicate that CALL attitude measurement instruments are mostly borrowed from existing scales and mostly from the scale proposed by Vandewaetere and Desmet (2009).

Analysis methods

Four analysis methods are almost equally used by the studies included in this review: Pearson's correlations, t-tests, ANOVA and a mix of other methods, including regression analysis, Spearman's correlations, Kruskal-Wallis tests, MANOVA, SEM, multivariate statistical analysis, cross-tab tests, chi-square tests and Mann Whitney tests. This seems to indicate that findings on attitudes towards CALL are mostly analysed through Pearson's correlations, t-tests, and ANOVA.

Findings on instructors' attitudes towards CALL

The studies included in this review section have examined the correlations between instructors' attitudes towards CALL and the following three (3) groups of factors: demographics; language teaching ability; and prior computer usage (Figure 1).

Demographics

Fifteen percent (15%) of the studies included in this review examined the correlation between instructors' demographics and their attitudes towards CALL. All of these studies have gender as the only factor which has a correlation with attitudes towards CALL. About a third of the studies found that demographics have a positive correlation with attitudes towards CALL, and for the remaining two thirds, such a correlation does not exist. One is therefore tempted to reach a borderline conclusion that, according to existing literature, there is no relationship between instructors' demographics and attitudes towards CALL.

Language teaching ability

Ten percent (10%) of the studies included in this review examined the correlation between instructors' language teaching ability and their attitude towards CALL. Three quarters (¾) of these studies found that instructors' language teaching ability had no correlation with their attitude towards CALL, while the remaining quarter found a positive correlation. One is therefore tempted to reach a conclusion that, according to existing literature, there is no relationship between instructors' language teaching ability and attitudes towards CALL. Some of the language teaching ability factors are: academic qualifications; teaching experience; use of a language laboratory; and the use of a language laboratory to teach English. The relationship between academic qualification and attitude towards CALL is examined by one (1) of the studies which are included in this review, and the study found that such a relationship does not exist. The

relationship between teaching experience and attitude towards CALL is examined by one (1) study, and the study found that such a relationship does not exist. The relationship between the use of a language laboratory and attitude towards CALL is examined by one (1) study, and the study found that such a relationship does not exist. The relationship between the use of a language laboratory for teaching English and attitude towards CALL is examined by one (1) study and the study found that such a relationship was positive.

Prior computer usage

Ten (10) percent of the studies included in this review examined the correlation between instructors' prior computer usage and their attitude towards CALL. Fifty percent (50%) of these studies have both prior computer usage factors with a positive correlation with attitude towards CALL, and prior computer usage factors with no correlation. One is therefore tempted to conclude that existing literature is inconclusive on the relationship between instructors' computer prior usage and attitude towards CALL. Some of the prior computer usage factors examined by this literature review are: computer training; and computer course attendance. The relationship between computer training and attitude towards CALL was examined by one (1) of the studies which are included in this review and the study found that such a relationship does not exist. The relationship between computer course attendance and attitude towards CALL was examined by one (1) study and the study found that such a relationship is positive.

Prior CALL usage

Five percent (5%) of the reviewed studies included in this review examined the correlation between instructors' prior CALL usage and their attitude towards CALL. All these studies found that prior CALL usage has a positive relationship with attitude towards CALL. We are therefore tempted to infer that existing studies are conclusive on the existence of a positive relationship between instructors' prior usage of CALL and their attitude towards CALL. The only prior CALL usage factor included in this review is attendance of CALL programmes.

The above discussed factors are represented in Figure 1 below.

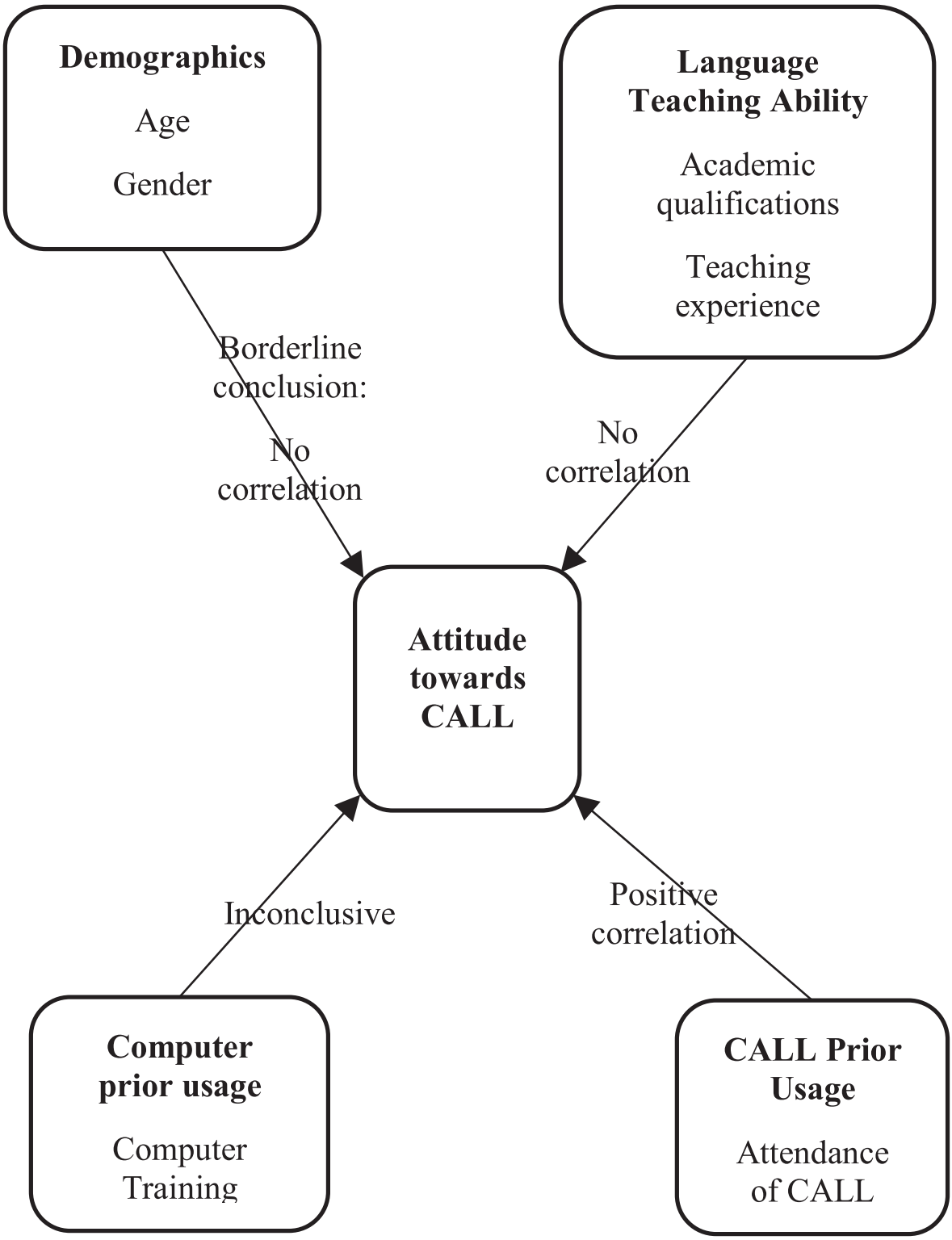

Figure 1: Instructors' CALL attitude factors identified from preliminary literature review

Theoretical foundations of the proposed CALL attitude factors model for instructors

This section focuses on the identified gaps from the preliminary literature review, the combined empirical models from the preliminary literature review, and a proposed theoretical framework.

The gaps

This literature review seemed to point to a borderline conclusion on the non-existence of a relationship between instructors' demographics and their attitude towards CALL, and between instructors and teaching profile and their attitude towards CALL. On the other hand, this review seemed inconclusive on the relationship between instructors' computer usage and their attitude towards CALL, but it seemed to support the existence of a positive relationship between instructors' prior usage of CALL and attitude towards CALL, and between TAM factors and instructors' attitude towards CALL. Moreover, this review seemed to indicate that there is more enthusiasm for CALL research on the Asian continent compared to other continents and all the reviewed studies only focus on the use of CALL for the English language. The following research gaps can therefore be identified from this preliminary literature review: the need for more research on borderline and inconclusive findings; a call for more research in other geographical settings beyond the Asian continent; and the need for more research on the attitudes of instructors and other education stakeholders towards CALL.

The theoretical framework

The purpose of this section is to illustrate how the above proposed CALL attitude factors' empirical model is supported by existing theories by presenting the key theories behind each of the following variables of that model: demographics; beliefs; CALL and prior computer usage; and language teaching ability. This section will begin with a presentation of existing theories supporting the existence of a direct relationship between one of the above listed variables and attitudes towards CALL. This is followed by the presentation of existing theories which support the existence of an indirect relationship between the other variables and attitudes towards CALL.

Direct relationships to attitude

There are a few theories supporting the existence of a direct relationship between users' beliefs and their attitudes towards technology, including the Theory of Reasoned Action and the Theory of Planned Behaviour.

The Theory of Reasoned Action (TRA): TRA was proposed by Fishbein (1967), and it argues that people's behaviour is influenced by their behavioural intentions, beliefs, attitudes and norms. There is need to explicitly identify the relationships which directly link people's attitudes with the other above-listed TRA factors, because the dependent variable for the current study focuses on people's attitudes. According to Fadzil *et al.* (2012), "TRA proposes that belief affects attitude". Anridho and Liao (2013) also posit that the "theory of reasoned action proposed that individual's belief influences attitude". Similarly, Latif *et al.*

(2012) confirm that "TRA proposes that belief affects attitude". The following three extracts from Lee *et al.* (2017), Kim (2008), and Hartono *et al.* (2013) provide the same evidence on the relationship between people's beliefs and their attitudes: "TRA suggests that belief affects attitude"; "In TRA, an individual's belief influences attitude", and "TRA posits that belief influences attitude".

The Theory of Planned Behaviour (TPB): TPB was developed by Ajzen (1985) as an extension of the TRA where the perceived behavioural control factor can be considered as a replacement for TRA's evaluations of action factor, except that this new factor has more consequences. The theory argues that a person's behaviour is determined by their intention to perform the behaviour and that this intention is, in turn, a function of their attitude towards the behaviour and their subjective norm (Gudonis *et al.*, 2014). TPB is used in this paper to hypothesise the effect of subjective norms on attitude towards a behaviour, even though this relationship between subjective norms and attitude is not explicit in the original TPB model as highlighted by the following extract from Chang (2013:1832): "the attitude and subjective norm components are not as independent as the theory [TPB] predicts".

Indirect relationships to attitude

The above section presented relevant theories on the effect of beliefs on attitude towards behaviour. These theories are the TPB and the TRA. Moreover, the model given in Figure 1 includes other variables, such as demographics, language teaching ability, and CALL and prior computer usage. The

purpose of this section is to identify and present existing theories which link these variables either to beliefs, or to the TRA and TPB constructs which are directly linked to attitude towards a behaviour. For example, TPB postulates that Perceived Behavioural Control directly affects attitude towards a behaviour; therefore, this section will attempt to identify theories which link demographics, language teaching ability, and CALL and prior computer usage either to beliefs, or to Perceived Behavioural Control, or to any TRA or TPB construct which is believed to affect attitude towards behaviour.

Theory linking language teaching abilities and Perceived Behavioural Control: TPB

According to Kidwell and Jewell (2010), citing Armitage *et al.* (1999), one of the aspects of the concept of perceived behavioural control, as proposed by the TPB, is that "a behaviour may be internally controllable when an individual perceives that he or she possesses control over personal resources, such as requisite skills, confidence, and ability, to perform the behavior". This implies that the Perceived Behavioural Control of a behaviour is affected by one's abilities, skills, competencies and confidence to control that behaviour. One can therefore postulate that language teaching abilities have an influence on the Perceived Behavioural Control of the usage of CALL. In other words, TPB can be identified as a suitable theory which links language teaching abilities to Perceived Behavioural Control.

Theory linking CALL and Computer usage and Beliefs: Hume's Theory of Beliefs

Hume's Theory of Beliefs was developed in 1975 and argues that habitual or repeated experiences affect beliefs (Jones, 1998). The theory identifies three types of beliefs:

i) Belief in the continuous existence of an external world independent of our perception of that world.

ii) Belief that the regularities which have occurred in our experience form a reliable guide to those which will occur (many locations).

iii) Belief in the reliability of our senses qualified to take account of acknowledged and isolatable areas of deception and confusion (many locations) (Gaskin, 1974).

Hume's (1975) second belief speaks closely to this study and this is supported by Costa (1981:222) who argues that "the paradigm or central case of belief formation is the case in which the belief follows involuntarily and immediately subsequent to some impression because of habit brought about by having experienced a large number of cases in which objects resembling those in the impression and belief have been associated as cause and effect". This seems to imply that it makes sense to believe that the past predicts the future. One can therefore postulate that the prior usage of CALL and of computers have an influence on the beliefs which are associated with CALL. In other words, Hume's theory of

beliefs can be identified as a suitable theory which links the prior usage of CALL and of computers to the beliefs associated with CALL.

Theory linking demographics to CALL and prior computer usage: Digital Divide Theory

According to Baxter-Webb (2015), citing Warschauer (2004), Van Dijk (2006), Selwyn (2004), Ching *et al.* (2005), Hargittai (2010), Silver (2014) and Norris (2001), "the digital divide theory posits that society is becoming stratified based on patterns of technological ownership, access and use […] which are usually shaped by existing patterns of inequality with regards gender, class and ethnicity". The Digital Divide describes a situation where there is an economic and social inequality with regard to the access, the use, and the impact of information and communication technologies (ICT) (Amuomo, 2017). This seems to imply that access to and use of ICTs are heavily influenced by people's social positions. One can therefore postulate that the demographics of a person have an influence on their chances to use CALL and computers. In other words, the Digital Divide Theory can be identified as a suitable theory which links demographics to the prior usage of CALL and of computers.

The above-discussed proposed CALL attitudes are represented in Figure 2 below.

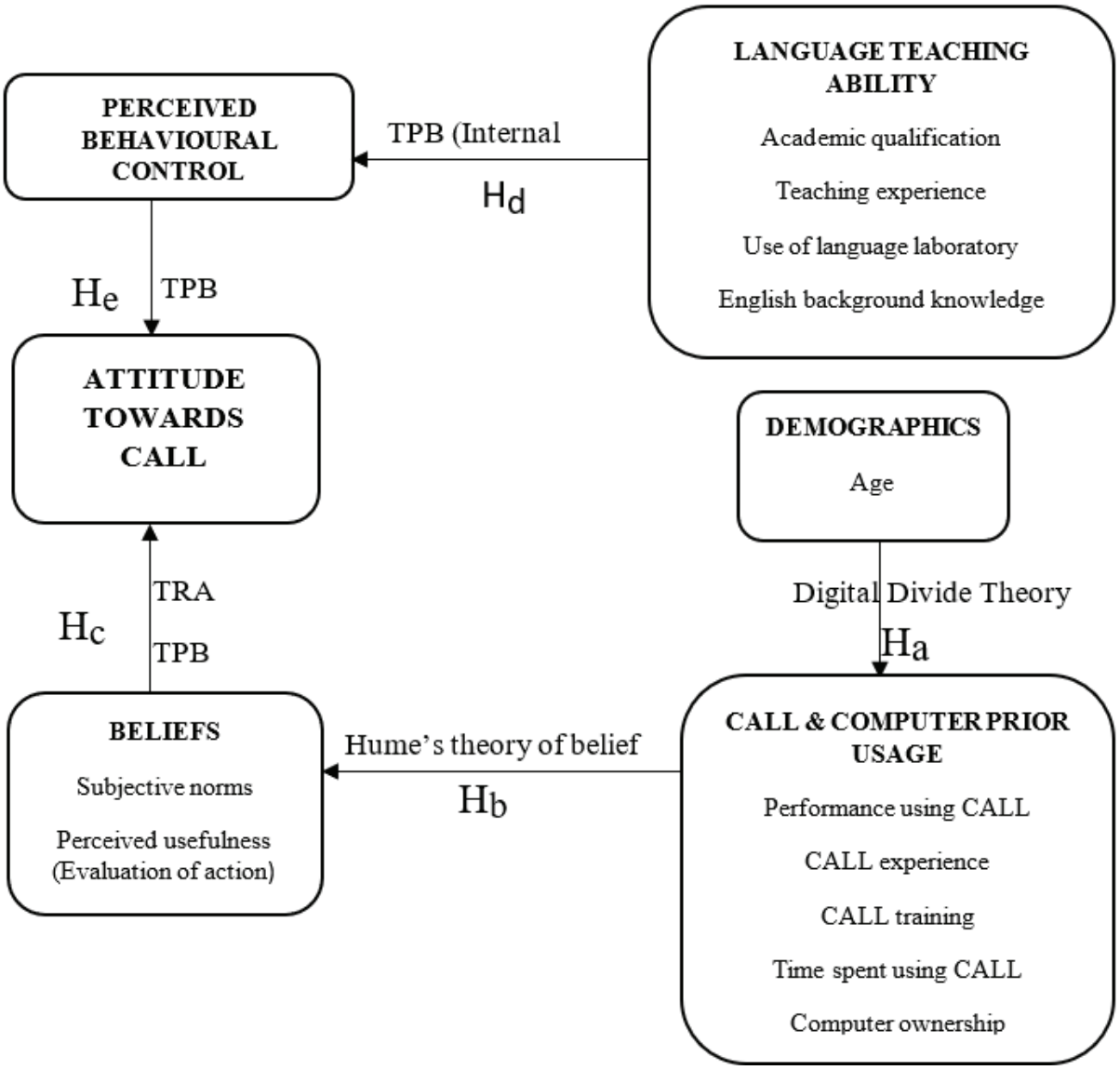

Figure 2: Proposed CALL attitude factors model

Conclusion and Contribution

The contribution of this literature review paper can be assessed by comparing its content against one of the eleven (11) previous literature review papers which were identified by this study. These eleven (11) previous literature review papers include: Macaro *et al*. (2012); García-Villada (2009); Cherrez (2017); Dashtestani and Stojkovic (2015); Golonka

et al. (2014); Liu and Chen (2009); Peterson (2016); Shadiev *et al.* (2017); Slavuj et al (2017); Stockwell (2007); and Yaibuates et al (2015).

This review is less current than the other reviews since it goes as far back as 1986, while only one of the other reviews covers papers published before the year 1986; however, this preview is slightly more current compared to the other reviews since the current review covers papers published in 2017, while only one of the other reviews covers papers published in 2016. On the other hand, this review is similar to the other reviews in terms of the CALL technologies which it covers, in the sense that it does not restrict itself to CELL, CALI, CBLT, TELL, TALL, NBLT, DLL or MALL, and the same applies for the other reviews.

This review had a smaller number of reviewed studies compared to the other reviews since it reviewed only nineteen (19) studies, while one of the other reviews reviewed up to three hundred and fifty (350) studies.

This review covers only one language (English), while one of the other reviews covers up to fourteen (14) languages.

This review states its review or analysis framework, while the majority of the other reviews do not state any review or analysis frameworks, consequently negatively influencing their findings and results.

In conclusion, this review streamlines its focus to the attitudes towards CALL compared to other reviews which do not have a particular focus on CALL; however, only one of

the other reviews investigated attitudes toward CALL. This seems to indicate that study in the field of CALL is still at inception stage. So, in terms of research focus, the present study has a definite focus (attitude towards CALL), as opposed to previous reviews of literature whose focuses were broader.

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