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Adopting Gartner's hype cycles to investigate the lifespan of computer assisted language learning from EFL learners' perspectives

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Abstract

It is crucial to study how L2 learners use technology when examining the lifespan technology in L2 pedagogy. Therefore, we adopted Gartner's hype cycles to investigate the lifespan of CALL from the perspectives of EFL learners. To this end, we utilized an explanatory narrative design and gathered and analysed the perspectives of 87 EFL learners regarding the CALL lifespan using autobiographical narratives and semi-structured interviews. The results of the deductive thematic analysis presented motivating and demotivating factors that were asserted to affect EFL learners' uptake of CALL technologies. Moreover, the findings revealed that EFL learners had fallacies about CALL in the first stages of using technology for L2 learning and tended to reduce those fallacies later on. Therefore, it can be concluded that EFL learners start their use of CALL with some misconceptions stemming from the motivating factors of CALL, continue their use of CALL by facing some demotivating factors originating from fallacies about CALL that they have already committed, and finalise their use of CALL by exploring about CALL features that help them avoid their fallacies. The study has implications to shorten the time of reaching the awareness zone by the L2 learners.

Keywords: CALL, Gartner's hype cycles, EFL learners, Explanatory narrative design

Introduction

It is undeniable that technological advancements open up new perspectives in L2 pedagogy among L2 learners, teachers, materials developers, and policy-makers, making it difficult for them to imagine L2 learning and teaching without technology (Lomicka & Lord, 2019; Meihami & Esmaili, 2024). This refers to what Bax (2003) mentioned as "normalisation", according to which technology is an inseparable part of L2 pedagogy. The combination of computer-assisted language learning (CALL) terms might show that it is no longer possible to see L2 pedagogy without technology. However, Chambers and Bax (2006, p. 465) asserted that the term "assisted" in CALL tries to regulate the ideology that technology can be a "miracle cure all". Bax (2003) stated two fallacies for "normalisation" that L2 learners, teachers, materials developers, and policy-makers may have

about CALL. First, the more features there are of a technology type, the more its contributions to L2 pedagogy will be. Second, technology can remove all problems concerning L2 learning and teaching. Such fallacies have led L2 learners and teachers to ask about the best L2 learning and teaching CALL apps (Stockwell & Reinders, 2019).

The expansion of the fallacy that CALL is a "miracle cure-all" among L2 learners and teachers may be attributed to CALL users' perceptions of the affordances provided by CALL. There may be differences between the intended affordances of CALL and the perceived affordances by the users of CALL (Meihami, 2023; Stockwell, 2022). Van Osch and Mendelson (2011) proposed three main CALL affordances: designed, improvised, and emergent. The developers of an artefact, a CALL app, identify a set of affordances called designed affordances. Because of the existing gap between the developers and the users concerning the designed affordances of an app, the users may not perceive the intended designed affordances; therefore, this may lead to the design affordance fallacy. For example, the developers of a CALL app create a predetermined time schedule for learners to use, but the learners may make a fallacy that they can have any schedule they desire to set for their learning. The second type of affordance is improvised affordance, where the users of an artefact will improvise a new function for an artefact that is not intended by the developers (Van Osch & Mendelson, 2011). For instance, the developers of a CALL app create it to help learners with their semantic knowledge, yet the users create a fallacy about its effectiveness for developing pragmatic knowledge. The third type of affordance that might lead to fallacy among the users of CALL apps is emergent affordances, which are not perceived or intended by the developers or the users (Van Osch & Mendelson, 2011), yet the changes in the environment can bring them about (Stockwell, 2022). For example, unpredictable conditions such as the COVID-19 pandemic may lead CALL users to create a fallacy that the CALL apps, which highlight autonomy, can be used in such a condition with better final learning and teaching results. Although not always the affordances lead to fallacies, the perceptions of the developers and users may lead to different types of designed, improvised, and emergent fallacies.

Researchers should address the transition from affordance-based to pedagogy-based CALL to understand the CALL fallacies. Pedagogically sound decisions about how to utilise CALL affordances in CALL-based pedagogy is critical for obtaining final success (Garrett, 1991, 2009). Salaberry (2001, p. 39) stated that while affordances provided by technology "may have been revolutionary in the overall context of human interaction, it is not clear that they have achieved equal degrees of pedagogical benefit in the realm of second language teaching". Therefore, understanding how to utilise technology affordances in pedagogical practices while teaching and learning L2 is essential. Suppose it is not well understood from the perspectives of the CALL users; in that case, the final destination may be full of pedagogical challenges (Burston, 2014) that CALL users in their process may make fallacies of CALL affordances to learn and teach L2. Golonka et al., (2014, p. 93) believe that technology "will not make bad pedagogy good"; therefore, pedagogical practices need to be understood by the CALL users, so a better picture of the relationship between CALL affordances and CALL pedagogy can be depicted to remove detrimental CALL fallacies.

One way to address the transition from affordance-based CALL to pedagogy-based CALL is to investigate the lifespan of technology (Stockwell, 2022) from the perspectives

of CALL users, especially L2 learners using CALL. First, examining the lifespan of CALL can help us understand the probable fallacies L2 learners may make while learning an L2. Therefore, studying the lifespan of CALL can provide insights into L2 learners' learning process and potential mistakes. Second, exploring the lifespan of CALL helps us understand the gap between L2 learners' perceived affordances and the developers' intended affordances. Third, investigating the lifespan of CALL can illustrate how L2 learners go through ups and downs with the affordances provided by CALL to reach a stabilised level where they can use CALL for pedagogical purposes. Hence, exploring the lifespan of CALL can illustrate how learners adapt to the technology's affordances, eventually reaching a stable level of proficiency. Moreover, it can help us understand how CALL emerges (Levy & Stockwell, 2013). Therefore, a clearer understanding of the transition from affordance to pedagogy can be obtained by studying the lifespan of CALL among L2 learners (Stockwell, 2022).

Although some studies have investigated different aspects of CALL in L2 pedagogy through systematic reviews (e.g., Booton et al., 2023; Turan & Akdag-Cimen, 2020), none has specifically addressed the lifespan of CALL. Therefore, we aimed to investigate the lifespan of CALL materials, including apps, platforms, and software, from the perspectives of the FFL learners. To that end, we adopted Gartner's hype cycles (Gartner, 2018) to see how EFL learners use CALL, from affordance-based to pedagogy-based CALL. The following research question guided this study:

How is the life span of CALL from the perspective of EFL learners based on Gartner's hype cycles?

Literature review

Gartner's hype cycles

Gartner Inc. introduced Gartner's hype cycles to evaluate the promotion and perceived values of technologies and innovations. Gartner's hype cycles (Fig. 1) depict the path

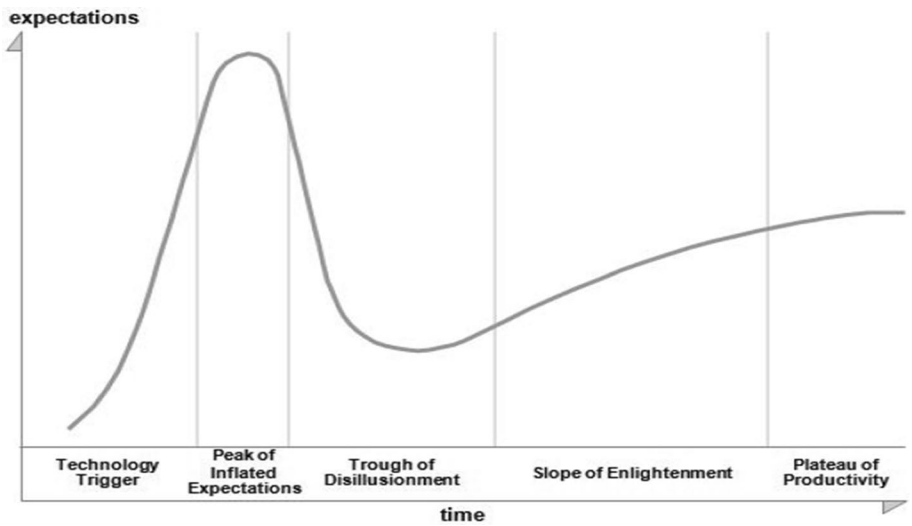

Fig. 1 Gartner's Hype cycles [Extracted from Gartner, (2018)] This is a cycle describing the ups and downs of technology during different time

that technology or innovation takes regarding visibility and time (Dedehayir & Steinert, 2016). Although it is formally developed to represent the development of technologies and innovation, Gartner's hype cycles can be used in different disciplines (Gartner, 2018). Gartner's hype cycles, therefore, illustrate the advancement of technology and innovation through different phases, such as the keen feelings of the users to the time of disillusionment and the final plateau of technology use (Gartner, 2018). According to Gartner's hype cycles (Fig. 1), there are five stages for each technology or innovation to reach productivity, including the innovation trigger (formerly called technology trigger), the peak of inflated expectations, the trough of disillusionment, the slope of enlightenment, the plateau of productivity.

The first stage is the innovation/technology trigger. This stage starts with a public announcement, which can be anything that brings about rapid development and interest (Gartner, 2018). It can be "a major improvement in price/performance, adoption by a respected organisation, or simply a rush of media interest that socializes and legitimizes the concept" (Gartner, 2018). Other features which can be mentioned for this stage before the specific technology reaches its peak are the low number of users compared to the peak, some features of the technology are still under construction, many customisations are required, high price should be paid, and users' endeavours to make the best use of the technology. Stockwell (2022, p. 39) believed that this stage is related to the affordance-based practice of CALL, "where users are still trying to identify the technical affordances of the technology and counterbalance them with their own individual goals and expectations for the technology's use in their individual context".

The second stage is the peak of inflated expectations. This stage is characterised by "buzzwords" about the technology type from the users and mass media (Gartner, 2018). Moreover, the enthusiastic users and the developers of the technology type try to show the competitive features of the technology types compared to other relevant technology types. In this stage, the companies attempt to provide eye-catching names for new features to attract users. Stockwell (2022) stated that users expect more than what is possible from the technology at this stage. Therefore, at this stage, CALL users may think that the new technology features may become a "miracle cure all" (Chambers & Bax, 2006, p. 465) previous problems, leading to a fallacy that the newer technology is better (Bax, 2003).

The third stage is the trough of disillusionment resulting from the second stage. The technology users are disappointed in this stage due to not accomplishing their expectations. Many of these dissatisfactions originated from centring technology types on inappropriate uses (Gartner, 2018), which may be rooted in the users' fallacies about technology. The characteristics of this stage are negative statements by the users and press about the failure of technology, and general beliefs exist about the practical potentials of technology (Gartner, 2018). Stockwell (2022) believed that "the disappointment regarding a technology may result in a greatly reduced use of the technology, perhaps even to the extent that it is abandoned" (pp. 38–39).

The fourth stage is the slope of enlightenment. The main feature of this stage is the developers' and users' investigation of the drawbacks of the technology based on the earlier feedback. At this stage, the users have learned much about using the technology appropriately and practically (Gartner, 2018). The technology developers have also

released the second or third generations of their technology by enhancing their features. Gradually, at this stage, the technology will be the centre of users' attention and press that address its new features that try to remove the previous failures. The users also try to obtain a comprehensive understanding of the context, leading to an increase in the performance of the technology (Dedehayir & Steinert, 2016).

The final stage is the plateau of productivity, "where the balance of how to use a technology with existing tools can be settled on, and specific ways of integrating the tool to achieve maximum productivity become clear to the users" (Stockwell, 2022, p. 39). At this stage, the real benefits of the technology are well-acknowledged (Gartner, 2018). One of the main features of this stage is that the user will become aware of how to use a technology type to accompany other tools. This helps the users to be involved in an "ecosystem" (Gartner, 2018) of technology where the users, developers, and other stockholders interact. This stage is related to what Levy and Stockwell (2013) called "established CALL", where the CALL users understand the CALL affordances and try to find other effective ways to use technology.

Applying Gartner's hype cycles in computer-assisted language learning

Gartner's hype cycles are not intended to be used in education. However, they can be applied in different fields, including education (Stockwell, 2022). Stockwell (2022) believed that Gartner's hype cycles could be used in CALL studies when affordance-based and pedagogy-based practices are focused. Accordingly, the three first stages of Gartner's hype cycles (technology/innovation trigger, inflated expectations, and trough of disillusionment) are related to the affordance-based practices of CALL, where CALL users go through trial-and-error (Stockwell, 2022) so that they could use technology for learning and teaching. The three first stages are relevant to "emergent CALL" (Levy & Stockwell, 2013), where CALL users try to examine the features of CALL to utilise them for their teaching and learning purposes. Stockwell (2022) also believed that the two last stages (the slope of enlightenment and the plateau of productivity) are related to the pedagogy-based practice of CALL, where they have obtained the basic required knowledge to use CALL for their teaching and learning practices, what is called by Levy and Stockwell (2013) as "established CALL".

To utilise Gartner's hype cycles to examine the lifespan of CALL from the perspectives of EFL learners, we need to explore stages of Gartner's hype cycles to find out the features of each stage. Concerning the first stage, innovation/technology trigger, we need to understand anything that causes rapid development and interest in using CALL on the part of the EFL learners. The second stage, the peak of inflated expectations, can be examined by exploring the buzzwords, exaggerations, and overestimations that L2 learners make about CALL. To utilise the third stage of Gartner's hype cycles, we need to explore the disappointments that follow the "buzzwords". The fourth stage, the slope of enlightenment, can be addressed by investigating how EFL learners try their best to learn using CALL. Finally, the plateau of productivity can be addressed by exploring how EFL learners put their steps in the CALL "ecosystem" to use a specified CALL material with other technological artefacts. Therefore, by designing a narrative inquiry research design, we could address these stages to determine the lifespan of using CALL from the L2 learners' perspectives.

Methodology

The lifespan of CALL is not without turning points. Considering Gartner's hype cycles as the framework to do this study, we can see various turning points among different stages. Consequently, we employed a narrative inquiry to explore these turning points from the perspectives of EFL learners. According to Creswell and Poth (2018), by exploring participants' stories, narrative inquiry can help researchers identify turning points, transitions, and interruptions. Therefore, we conducted a narrative inquiry to address the lifespan of CALL materials from the EFL learners' perspectives. Among different designs of narrative inquiry, including descriptive, explanatory, and critical, we followed the tenets of explanatory design since it "is used to provide an account of some phenomenon by means of why something happened" (Edmond & Kennedy, 2016, p. 161); thus, this design could help us delve into the turning point and transitions that L2 learners experienced during using CALL.

Design of the study: an explanatory narrative inquiry

The explanatory design helped us to examine the reasons and causes of the CALL lifespan from the perspectives of EFL learners. The explanatory narrative design has seven stages, including identifying the phenomenon, using purposeful sampling, collecting stories about the causes and reasons for the phenomenon, restory and retelling, collaborating with the participants, writing a story about the participants' experiences as they relate the phenomenon, and validate the accuracy of the narrative account. First, we identified the phenomenon's core concept: CALL's lifespan. To such end, we followed the second stage, using purposeful sampling, where we recruited EFL learners who had experienced using CALL materials (apps, platforms, and websites) for at least five or more years. In the third stage, we asked the participants to produce their autobiographical narratives. Next, we followed stage four and tried to retell what the participants had produced as narratives. In the fifth stage, we collaborated with them to member check the accuracy of our understanding of their narratives. Stage five, the heart of the design, pushed us back to the second and third stages to recruit further participants to produce more narratives. In the sixth stage, we produced a narrative of the participants' narratives based on the primary data analysis of the participants' narratives using MAXQDA 22. At this stage, we went further and did more analyses using thematic analysis informed by the framework of the study: Gartner's hype cycles. Finally, in the seventh stage, we addressed the rigour of the study.

Participants

The participants of this study were 87 EFL learners who had used CALL for five or more years. They were BA students in translation studies and teaching English as a foreign language. The participants were at upper-intermediate and advanced proficiency levels based on their self-reports. It is worth mentioning that 50 participants were female, and 37 were male. Their age ranged between 18 and 35. The study participants were called informants since they helped us delve deep into the phenomenon of the CALL lifespan.

Data sources

The main data sources of this study were autobiographical narratives produced by the participants and semi-structured interviews with them. The main reason for selecting the autobiographical narrative as the main data source of this study was that it could help us activate participants' autobiographical memory about the phenomenon (Smorti, 2011). Therefore, we could comprehensively investigate the phenomenon under study, the lifespan of CALL. Moreover, according to the explanatory narrative design of the study, we needed to collect data about the causes and reasons that CALL users went through different stages of Gartner's hype cycles when using CALL materials. To that end, we needed to activate their autobiographical memory. Hence, we followed two methods to activate the participants' autobiographical memory about the lifespan of the CALL materials. First, when we asked participants to produce their narratives, we explained the purpose of the study and how technology could follow various ups and downs when used. Then, we tried to activate the turning points they experienced while using CALL materials; for example, the moments they thought a CALL app was the best solution for their learning or the time they thought that it did not work anymore concerning the purpose, and she/he needed to think of other apps.

Second, we put the five stages of Gartner's hype cycles into the narrative framework based on which the participants were asked to produce their narratives. This framework started with sentences that tried to draw the participant's attention to the stages of Gartner's hype cycles. For instance, since the first stage of Gartner's hype cycles is the announcement, which can be anything that brings about rapid development and interest (Gartner, 2018), the start of the narrative framework was as follows:

- The first CALL material (e.g., app, platform, software, etc.) I used was …… after I became interested in it due to … and the development in …… and improvement in ……,

As seen in this part of the narrative framework, the participants needed to activate their autobiographical memory to project the answers about the interests, improvements, or developments concerning CALL materials that pushed them to start using them. It is critical to mention that the participants were free concerning the length of their narratives. They were told to produce their narrative at any length they preferred. Furthermore, they could produce their narratives orally by following the narrative framework we gave them. Therefore, orienting participants about the nature and the purpose of the study and framing the narratives based on Gartner's hype cycles would help us to collect valuable information about the phenomenon: the lifespan of CALL. To eliminate the impact of L2 proficiency on narrative production, participants had the option to use their L1, Persian.

The second data source was the semi-structured narratives. We conducted semi-structured interviews to add information to what had already been collected through the autobiographical narratives. We formulated the interview questions based on the five stages of Gartner's hype cycles. For instance, we asked a question in the interview that implicitly drew participants' attention towards the third stage of Gartner's hype cycles: the trough of disillusionment. The question was, "when was the first time you were disappointed with the first CALL material (e.g., app, platform, software, etc.), and why?".

We reached data saturation by conducting interviews with 12 participants (Ary et al., 2014) when we could not find any new information. Thus, we stopped data collection at this stage.

Data analysis and rigour of the study

We followed the procedures of thematic analysis proposed by Braun and Clarke (2006) since it "can be a method that works both to reflect reality and to unpick or unravel the surface of reality" (p. 81). Since we framed the study based on Gartner's hype cycles and used its five stages to collect data about the phenomenon of CALL lifespan, we analysed the participants' autobiographical narratives and interviews using a deductive thematic analysis. It could help us be more explicit concerning the data analysis (Braun & Clarke, 2006); thus, we could understand the lifespan of CALL materials from the EFL learners' perspectives.

Based on the explanatory narrative design, we had to validate the accuracy of the narrative account. To that end, we addressed credibility, transferability, and dependability, which are the indexes of rigour in qualitative studies (Ary et al., 2014). The credibility was addressed in the current study using structural corroboration. To do so, we collected two types of data: autobiographical narratives and interviews. Moreover, we managed referential evidence through member checking, in which we asked seven participants to provide feedback about whether they agreed with the result of the analysis. Transferability, as equal to external validity, was enhanced by using cross-case comparisons. To that end, participants of the study were selected from male and female EFL learners who used different CALL materials (e.g., apps, platforms, and software) for different purposes. Moreover, they were at upper-intermediate and advanced levels of proficiency. Finally, the dependability of the findings was addressed by using inter-coder agreement. Hence, we asked another coder to go through 30% of the data to see whether an agreement existed between the coders. The result of the inter-coder agreement was 80%.

Findings

By doing a deductive thematic analysis of the EFL learners' autobiographical narratives and interviews, we found that there are determining factors in each stage of Gartner's hype cycles that lead to enhancing and reducing the expectations of EFL learners concerning the lifespan of CALL materials. Although we used Code Matrix Browser to identify the determining factors, we drew our final results based on Gartner's hype cycles for better understanding (Fig. 2).

Stage 1: The innovation/technology trigger

Concerning the first stage, the findings showed that ten major factors motivate EFL learners to be enthusiastic about using CALL materials. Those are high privacy, low price, peer's recommendation, simple to use, quench the learners' purposes, enhancing autonomy, developing relatedness, providing competence checkout, addressing different learning styles, and providing a/synchronous features. They mentioned that "*high privacy is a solution to remove problems of lack of a safe platform to talk to different language learners without getting embarrassed*" so that they can "*become autonomous learners to address their purposes*". They also believed that "*being easy to use is a*

Fig. 2 Determining factors of CALL Lifespan: Gartner's hype cycles. These are The factors motivating and demotivating L2 learners to use CALL

determining point when [they] *want to choose an app*". Furthermore, "*being used and recommended by* [their] *friends and being free of expensive charges*" led to their first enthusiastic feeling about CALL materials. In addition, they believed that "*when* [they] *see an app provides ample interactions with other learners and help* [them] *check their progress*", they become interested in using those apps. They also asserted that "[they] *are interested in the CALL materials that work both online and offline*" and "*can be used for learners with different learning options and choices*".

Stage 2: Peak of inflated expectations

We found three main factors concerning the second stage of Gartner's hype cycles in the EFL learners' narratives and interviews: becoming a knowledgeable L2 learner in all topics, individualising L2 learning, and having a daily schedule. Their enthusiastic feeling concerning the effectiveness of the CALL materials reached its peak "*when* [they] *think that CALL apps can help* [them] *become competent L2 learners when* [they] *want to use English for different purposes*". Moreover, they believed that "*the new CALL platforms and apps that* [they] *have used solve many problems and make learning appropriate for each person*", which take into account "*other aspects of* [their] *life and make it an applicable daily task*".

Stage 3: Trough of disillusionment

Moreover, the analysis of the EFL learners' narratives and interviews showed that there were six determining factors leading to EFL learners' demotivation when using CALL materials, including having a '*boring*' layout, having a high price, not addressing individualised learning, authenticity, users' required affordance, and all L2 skills. They mentioned in their narratives and interviews that "*it* [the CALL app] *was great until it asked to pay a high price for using its features*". They also asserted that "*after using the app for more than three*

years, there has been no change in its layout, making [them] *demotivated*". Furthermore, one other demotivating factor in using CALL is not addressing individualised learning "*and treating all of the EFL learners the same in terms of the time and the effort* [they] *can put into learning*". Concerning authenticity, they believed that "[they] *find out that the platform does not provide a real task for* [them]". Furthermore, we found that one demotivating factor in the lifespan of CALL is "*not paying attention to what users want from an app which they have used for five years*". Finally, it turns out that "*not addressing all L2 skills equally was the disappointing moment of using* the [X] *app*".

Stage 4: Slope of enlightenment

The results showed that concerning the slope of enlightenment, the EFL learners explored their peer's views, premium information about the CALL materials, and other CALL materials to investigate how they could make the most appropriate use of the current CALL materials they had used. They stated that "*through asking and discussing the issues with* [their] *friends*, [they] *come up with some solutions to remove the boring feeling roots in the layout of the apps*". Moreover, "*searching the premium information of the platforms helps* [them] *become more aware of how to use the virtual environment*". Finally, through "*exploring the features of other CALL materials,* [they] *try to find a way to address the problems*".

Stage 5: Plateau of productivity

Finally, concerning the fifth stage of Gartner's hype cycles, the findings of this study showed one theme: *one-size-does-not-fit-all*. EFL learners who participated in this study believed that "*using only one CALL app, platform, software,* etc*. does not lead to success in L2 learning, yet they can be effective when we use them with identified and recognised aims and purposes*". It means CALL materials should address individualisation when preparing a virtual learning environment for L2 learners.

The co-occurrences among gartner's hype cycles

To explore the co-occurrences among the stages of Gartner's hype cycles based on the information obtained from the EFL learners' perspectives, we drew a Code Map by using MAXQDA 22. To do so, we used Simple Code Configurations (SCC) to see how close the codes were in the documents, including narratives and interviews. It is worth mentioning that the codes are the five stages of Gartner's hype cycles. Figure 3 shows the relationships among the five stage of Gartner's hype cycles.

Figure 3 shows two important points. First, there are co-occurrences among all stages of Gartner's hype cycles. Second, and more critically, it shows that the two stages of innovation/technology trigger and trough of disillusionment are very close to each other, showing that they could impact one another. They are close to each other because, based on the EFL learners' perspectives, the increase in factors of innovation/technology trigger can decrease the demotivating factors of disillusionment and vice versa.

Discussion

This study attempted to explore the lifespan of CALL materials (including apps, platforms, etc.) from the perspective of EFL learners by adopting Gartner's hype cycles. The results of the study indicated that there are determining factors at each stage that

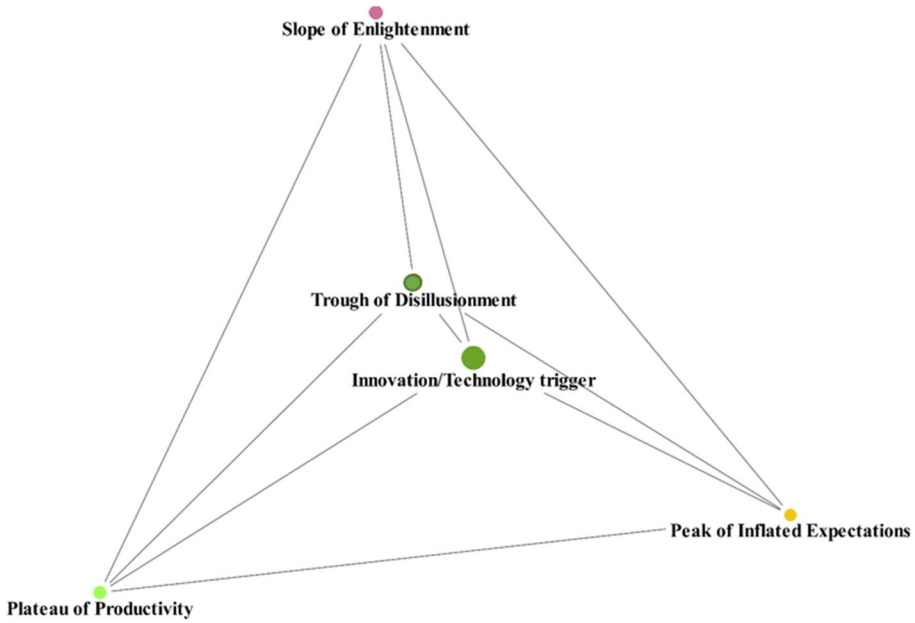

Fig. 3 Co-occurrences among Gartner's hype cycles stages based on EFL learners' perspectives. This is a map showing the co-occurrences among the stages of Gartner's hype cycles

motivate or demotivate L2 learners to use CALL materials. The findings revealed that factors motivating the learners at the first stage to pick up a CALL material comprised whether: (1) the price was low;(2) there was a recommendation from a peer; (3) the technology was simple to use, (4) quenching the learners' purposes; (4), the technology-enhanced learner autonomy, the technology developed relatedness, providing competence checkout, addressing different learning styles, and providing a/synchronous features. Then, the motivating factors, such as becoming knowledgeable L2 learners in all topics, individualising L2 learning, and having a daily schedule, led them to reach the peak of their CALL use. Next, they put step into the declining steep when some factors, including boring layout, high price, not addressing individualised learning, authenticity, users' required affordance, and all skills pop up. In the next stage, L2 learners tried to address the drawbacks of the technology based on exploring their peer's views, premium information about the CALL materials, and other CALL materials. Finally, they came up with the notion that there is no one best CALL material to help them learn, and they need to select a collection of the materials. Furthermore, the results indicated relationships among the stages of Gartner's hype cycles, with a strong relationship between innovation/technology trigger and trough of disillusionment, the motivating and demotivating slops, respectively.

The first stage of Gartner's hype cycles, innovation/technology trigger, requires motivating factors to push learners to use CALL. The results of this study indicated that three essential psychological needs of CALL (Stockwell, 2013), including relatedness, autonomy, and competence, were considered critical from the EFL learners' perspectives to start using CALL. According to self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000, 2020), the three main psychological needs that motivate learners to develop and promote their learning are relatedness, autonomy, and competence (Ryan & Deci,

2000). The learning environments, virtual or real, encompassing and addressing these needs motivate learners to deal with learning challenges (Klassen et al., 2012). Moreover, the EFL learners believed they were eager to use CALL when they found that it could quench their learning purposes. This finding can be discussed regarding the autonomy provided by CALL, helping learners to follow their learning purposes by using CALL (Reinders & Hubbard, 2013). Although CALL materials should address the basic psychological needs to provide the most appropriate virtual learning (Meihami & Husseini, 2022), they are not without technical and methodological issues that hinder their combinations. Therefore, it might be a fallacy in the mind of the L2 learners that CALL can address all of those needs at once.

Moreover, the current study's results indicated motivating factors such as low price, high privacy, and simplicity of use. Technology's high cost could be a barrier to online learning, low privacy could be considered a significant concern of failure of online adoption, and difficult-to-use technological learning tools might hinder effective e-learning (Almaiah & Alismaiel, 2019). Consequently, such factors can act as a two-edged sword in the early stage of using CALL by L2 learners in that they can be motivating factors to make them interested in using CALL or demotivating them. These factors are important since they can either increase or decrease learners' willingness and acceptance to use CALL (Almaiah & Alismaiel, 2019). As a whole, it can be argued that when the L2 learners need to use CALL materials featuring low price, high privacy, and ease of use, it would be critical for them to use technology types that provide both synchronous and asynchronous features so that they can use them in different connecting situations. However, considering CALL materials that have all of them altogether refers us to the CALL fallacy: that it is a "miracle cure all".

EFL learners' peak of inflated expectations included becoming knowledgeable L2 learners in all topics, individualising L2 learning, and having a daily schedule. It can be argued that the three expectations are the follow-up of what has already been mentioned by EFL learners for the first stage. Here is the venue to address our argument in this paper: the fallacy that CALL is the "miracle of cure-all". When looking back to what the learners mentioned for the two first stages, it seems that, in reality, it is impossible to combine all of them in CALL materials, or at least it is not applicable to address some of them. For example, addressing all learning styles of becoming knowledgeable in many topics are examples of EFL learners' fallacies about CALL materials. It refers to designed affordance (Van Osch & Mendelson, 2011) and its fallacies. Since, for example, the developers put timing affordance in their materials, this fallacy is made for the L2 learners that the materials should align with their timing preferences. Alternatively, since the developers include varied topics to help L2 learners, they presumed that the CALL materials should help them become knowledgeable in many topics.

The results also showed that the fallacy exists in the perspectives of the EFL learners concerning the third stage of Gartner's hype cycles: the trough of disillusionment. For instance, EFL learners had stated that they were disappointed with the CALL materials since they did not address individualised learning, authenticity, users' required affordances, and all L2 skills, which shows the fallacy that they consider CALL a separate learning environment from the real L2 pedagogy environment. However, we know CALL is not a different L2 context from L2 pedagogy. This is why the CALL community

has tried to see this conjoint relationship between L2 pedagogy and CALL through blended learning, filliped learning, hybrid learning and the use of class time in relation to technology (Saichaie, 2020). Another proof for the CALL fallacy in the EFL perspectives is the results obtained through SCC, where the two stages of innovation/technology trigger and trough of disillusionment happened too close to each other, showing that the motivating factors in the innovation/technology trigger stage became demotivating factors in the trough of disillusionment. Therefore, it offers that some motivating factors, such as low prices or addressing all L2 skills, are CALL fallacies that the CALL designers do not fully intend.

The critical point, however, is that the EFL students would not persist on the CALL fallacy since, based on the findings at the fourth stage of Gartner's hype cycles, they started to investigate different aspects of the CALL materials they used to find a way to remove the disappointment factors. Investigation can help individuals find the flaws in their reasoning; consequently, it can reduce the negative effects of fallacy. Therefore, by exploring their peer's views, premium information, and other CALL materials, they tried to minimize the CALL fallacy that one CALL material could help them with their learning. Moreover, the fifth stage theme, the plateau of productivity that is "one-size-does-not-fit-all," indicates that the EFL learners reduced the CALL fallacy that one CALL app, for instance, can be the best for their L2 learning. Moreover, it shows that they believed in combining CALL materials in an ecosystem that could help them use different CALL materials while considering L2 pedagogy in a real context.

Conclusion and implications

The current study explored the lifespan of using CALL from EFL learners' perspectives based on Gartner's hype cycles. The findings indicated that some motivating and demotivating factors encouraged or disappointed EFL learners to use CALL materials. Moreover, the findings revealed that EFL learners had fallacies about CALL in the first stages of using technology for L2 learning, which tended to reduce those fallacies later on. Therefore, it can be concluded through the findings of the current study that EFL learners started their use of CALL with some fallacies rooted in the motivating factors of CALL, continued their use of CALL by facing some demotivating factors originating from CALL fallacies, and finalised their use of CALL by exploring and investigation about CALL that helped them reduce their fallacies. Moreover, it can be concluded that the lifespan of CALL from the perspectives of EFL learners follows a transition from affordance-based to pedagogy-based CALL (Stockwell, 2022), during which the EFL learners try to make sound pedagogical decisions about the CALL affordances (Garrett, 1991).

Figure 4 shows our main conclusion from the study's results. According to Fig. 4, in the first three stages of Gartner's hype cycles, the EFL learners develop the CALL fallacy, mainly due to the motivating factors concerning the affordances of CALL. Then, somewhere at the end of the third stage, the trough of disillusionment and the early stage of the slope of enlightenment, there is an awareness zone, making them aware of the CALL fallacy and the need to change. This is the zone where they become aware of the demotivating factors that depending on a specific CALL material is not the best way to learn an L2. They also become aware that instead of focusing on affordances provided by CALL,

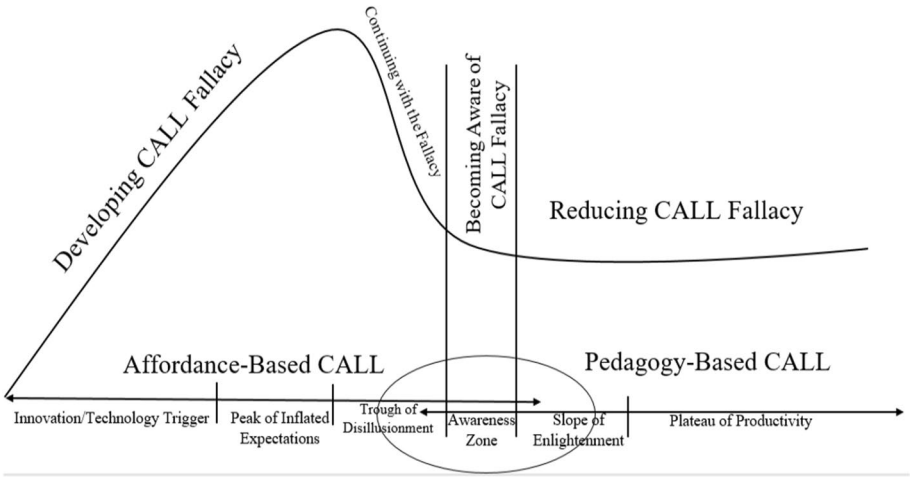

Fig. 4 The lifespan of CALL from the EFL Learners' perspectives. This is a map showing how affordance-based CALL leads to pedagogy-based CALL

they need to explore how to use those affordances pedagogically. This leads them to step into the next stages of Gartner's hype cycles, where they investigate the pedagogical aspects of CALL in an ecosystem.

Based on the results and the study's conclusion, the main pedagogical implication of the current study is to shorten the time of reaching the awareness zone by the L2 learners. This can be done through instructions provided by the instructional contexts and their stakeholders, such as teachers. Suppose L2 learners concentrate on the pedagogical aspects of CALL as soon as they start to use CALL materials. In that case, they can reduce the fallacies of CALL and have a realistic view concerning the conjoint relationships between L2 pedagogical real contexts and the virtual contexts provided by CALL. Moreover, one practical implication of the study for the CALL materials developers is that analysing the affordances preferred by the L2 learners can help reduce the gap in designed affordances between them and the L2 learners. Consequently, fewer CALL fallacies might be made by L2 learners when such a gap is addressed. One limitation of the study was that all participants were EFL learners, meaning that the findings were solely related to the EFL context. Moreover, it would be more comprehensive if the participants were from different EFL countries.

Author contributions
HM designed the study and collected and analysed data. CA helped with the findings and discussion. The final manuscript had the contribution of both HM and CA.

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Declarations

Ethics approval and consent to participate
All participants agreed to participate in this study and informed the researchers through their narratives.

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