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ARE WEB 2.0 TECHNOLOGIES USEFUL RESOURCES FOR TEACHING AND FOSTERING SOCIAL ENTREPRENEURSHIP?

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Thematic area: H) Corporate Social Responsibility

Keywords: Learning CSR - Social entrepreneurship - Web 2.0 strategic support - Web 2.0 technology use - Absorptive capacity

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Based on learning theory, this paper argues the importance of fostering learning of corporate social responsibility (CSR) in Business Studies to promote students' social entrepreneurship. Students must transform the knowledge of CSR issues they absorb into future action in social entrepreneurship. The emergence of Web 2.0 technology use in higher education institutions and of Web 2.0 strategic support facilitates new forms of teaching and absorptive capacity on social issues.

Our research results contribute to prior literature that analyses the positive mediating effect of learning CSR in the relationship between absorptive capacity and social action (social entrepreneurship). The results also show how Web 2.0 strategic support and Web 2.0 technology use in business schools increase the student's capacity to absorb knowledge of CSR issues. Further, our study demonstrates a positive and significant relationship between Web 2.0 strategic support and Web 2.0 technology use.

1. Introduction

Social entrepreneurship has become a global phenomenon that impacts society by employing innovative approaches to solve social problems (Robinson et al. 2009). It focuses on the creation of social impact, social change and social transformation (Nicholls 2006; Mair and Noboa 2006). In response to these social demands, organisations need future decision-makers capable of recognising and addressing new ethical dilemmas, adopting appropriate moral standpoints and translating these into justifiable social decisions (Brunton and Eweje 2010). As many university students will be future business leaders who must resolve social problems through solutions methods grounded in corporate social responsibility (CSR) (Byerly et al. 2002), educators must be made more aware of the need to improve students' knowledge and learning of CSR by incorporating related issues in study programmes. It seems logical also to focus on the values and emotions underpinning sustainable behaviours (Shephard 2008).

In recent years, academics have advocated the use of different teaching methods to promote more active learning and increase the efficacy of education for sustainability

management (e.g., Shrivastava 2010; Sunley and Leigh 2016). Integrating consciousness of CSR in students requires a more holistic pedagogy, which is, learning that includes the emotional and spiritual (Shrivastava 2010). Internalising knowledge of CSR should lead students to practice it later (social action), not merely to accumulate a series of concepts. Achieving such learning and put it into practice requires a passion for sustainability (Shrivastava 2010), and teaching passion requires educational change that takes students' learning a step further by making CSR values important and developing links to society and the natural environment. Heightened awareness of questions such as CSR and social entrepreneurship depends, among other issues, on students' absorptive capacity as a strategic and necessary element in their understanding of these matters (Delmas et al. 2011; Sáenz et al. 2014) and on students' subsequent action on them as social entrepreneurs (Cornelius et al. 2008).

Teachers will achieve this process more easily by exploiting Web 2.0 technologies, which enable more powerful transmission of concepts through values, passion, sensitivity and empathy—elements critically important to education for sustainability and CSR. By combining information and communication technologies (ICTs) with new resources such as Web 2.0, educators can communicate, cooperate, interact and facilitate knowledge exchange and social value creation (Arquero and Romero-Frías 2013; Bennett et al. 2012; Sigala and Chalkiti 2015). Web 2.0 technology use (in this study, platforms oriented more to professional than to personal use) fosters a high level of interactivity with significant implications for educational practice (Wankel 2009). Using Web 2.0 technologies has positive benefits for teaching and learning. These technologies have the potential to enhance student engagement (Ivala and Gachago 2012) and facilitate communication, collaboration, and teaching and learning of CSR (Junco 2012; Mazman and Usluel 2010). Web 2.0 technology use can improve quality of knowledge on these issues, be used as a mechanism for learning CSR and facilitate its transformation into social entrepreneurship (e.g., Ehlers 2009; Othman and Ab Wahid 2014; Schroeder et al. 2010).

This paper argues the need to educate students better on CSR-related issues. Students' learning of CSR must produce individuals more committed to the social environment (social entrepreneurship). Learning CSR can thus be defined as the educational "process to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy in close collaboration with their stakeholders" (adapted from European Commission 2011, p. 6). Although social entrepreneurship is hard to define, we use the term here to indicate the

intention to create “non-profit organisations developing any type of earned-income business in support of their social mission” (Defourney and Nyssens 2010, p. 12).

To teach CSR and promote social entrepreneurship, educators and their institutions must strategically support Web 2.0 technologies. We understand Web 2.0 strategic support as the foundation of Web 2.0 technologies "that enable users to communicate, create content and share it with each other via communities, social networks and virtual worlds more easily than before" (Byrd and Turner 2001, p. 42). Strategic support of these tools increases students’ use of them in the learning process. We use Web 2.0 technology to indicate the use of “advanced Internet applications that do something unique, practical, and/or powerful while enabling social connections, and thus, greater collaboration among users” (Ertmer et al. 2011, p. 2). Responsible Web 2.0 technology use can facilitate collaborative direct learning and promote students’ ability to access and absorb new knowledge about CSR, and subsequently put it into practice (Guy and Tonkin 2006; Hartshorne and Ajjan 2009). Finally, absorptive capacity refers to the “ability to recognize, absorb, integrate and apply new external knowledge to advance competitiveness” (Cohen and Levinthal 1990, p. 128).

Based on the foregoing, this paper’s main contributions are: 1) to stress the importance of improving students’ knowledge (by examining the influence of Web 2.0 technology use) and learning of CSR, and their turning this learning into practice. Knowledge of CSR should not stay in the learning phase; it must be transformed into social action. Educators need greater awareness of the importance of incorporating social issues into study programmes to enable university students (future business leaders) learning CSR to solve social problems through social entrepreneurship (Byerly et al. 2002); 2) to analyse the connection of learning theory to action in Business students. Learning theory asserts that students must play an active role in learning (Millwood 2011) but does not connect this learning to practical action. Our study fills this gap by enhancing students’ absorptive capacity through promotion of suitable Web 2.0 technology content (Dewey 1938) and a proactive (Millwood 2011) and educational environment (Dewey 1938). The resulting CSR learning will increase students’ intention to start new businesses that focus on social issues (social entrepreneurship).

To achieve this goal, the article is structured as follows. Section 2 describes the theoretical framework employed. Section 3 presents the study hypotheses considered and Section 4 the methods of data analysis employed. The results obtained are then discussed in Section 5. Finally, Section 6 presents the main conclusions drawn, the theoretical and practical implications of our study, limitations acknowledged and possible lines for future research.

2. Hypotheses

2.1 Influence of Web 2.0 strategic support on Web 2.0 technology use and absorptive capacity

Educators and strategic supporters of higher education institutions must play a key role in promoting experiential learning (Dewey 1938; Millwood 2011). Learning theory (Millwood 2011) argues that this process must be active to be helpful. Higher education institutions are gradually incorporating learning through Web 2.0 technologies into their programmes and providing the support needed for successful use of these technologies. Web 2.0 strategic support responds to students' technological needs (European Union 2013), recognising that Web 2.0 technologies provide outstanding opportunities for education by promoting self-directed learning, creativity and collective intelligence (Arquero and Romero-Frías 2013). At the same time, university students are very familiar with Web 2.0 technologies (Scott et al. 2016).

To optimise Web 2.0 technology use, universities and other educational institutions should create social network platforms to enable diversity, autonomy, interactivity and openness and to promote sustainable economic and/or social development (Downes 2007) in the university population. Although various tools and technologies have been proposed to support classroom activities, most involve brand-new and stand-alone programs, requiring users (teachers and students) to dedicate time and effort to familiarise themselves with the new approach (Lin and Jou 2012). As such platforms have specific requirements (e.g., functional development and technical design (De Kraker et al. 2013), personal effort and often specific training are needed to ensure that efficient Web 2.0 technology use benefits from the powerful functionalities offered (Lin and Jou 2012). Accordingly, higher education institutions must provide suitable staff training to familiarise teachers with these novel educational technologies and the environment in which they will be employed (Özdener 2018).

Web 2.0 strategic support is essential to achieving a complete learning process in the educational context (Hirsh-Pasek 2015). Such support also fosters a complex social environment in which social interaction is central to learning and absorbing new knowledge (Sawyer 2006). Strategic support should thus include both Web 2.0 applications used in professors' scheduled agenda (Lin and Jou 2012) and podcasts, and any other Web 2.0 applications that enable informal learning.

Furthermore, Web 2.0 technology use requires a prior knowledge base and technological infrastructure for efficient student use. In an organisation like the

university, Web 2.0 strategic support to build a Web 2.0 infrastructure or platform involves more than just adopting new applications. It probably requires significant organisational change to encourage use of the new technology as well as intercommunication and interrelation, first among teachers and then with and among students (Wirtz et al. 2010). Successful introduction of Web 2.0 is thus a question not only of technology but of how it is employed (Shang et al. 2011). In addition to addressing institutional requirements for the Web 2.0 infrastructure, teachers and support staff at universities must instruct students in effective, efficient and responsible Web 2.0 technology use, highlighting crucial issues. For instance, students should be reminded of the integrity of the information obtained via Web 2.0 technologies (Manly et al. 2015) and warned against plagiarism and sharing homework inappropriately (when asked not to do so) (Hajli and Lin 2016). Successful communication of this message creates responsible Web 2.0 technology use. In view of these considerations and previous research findings, the following hypothesis is proposed.

H1: The provision of Web 2.0 strategic support positively influences Web 2.0 technology use.

Learning theory argues that learning is a continuous process whereby students acquire knowledge step by step (Hirsh-Pasek et al. 2015) and need explanations to build and evaluate their constructions (Sandoval and Millwood 2005). Web 2.0 strategic support in education is relevant in this respect because it helps to involve participants in significant teaching and learning processes that improve their absorptive capacity (Lin and Jou 2012). Lin and Jou (2012) find that Google Web support applications (e.g., Google Docs, Reader, Sites and Plus) provide a supported learning and absorptive capacity environment for classroom teaching and learning activities. Google can play a significant role in higher education institutions by providing various useful Web applications that foster users' absorptive capacity.

Many higher education institutions now focus on the need to provide strategic support for Web 2.0 technologies (European Union 2013), to implement more effective information systems and to foster students' knowledge acquisition (Lin and Jou 2012; Alemu 2016). Such support can also overcome the limitations of Web 2.0 technologies (Guy and Tonkin 2006) and resolve questions, enhancing knowledge absorbed and collaborative and direct learning. Both professors and suppliers of Web 2.0 technologies or IT experts must be involved in this support, as they control the content and can monitor what students must learn and how they absorb knowledge.

Institutions that have close relationships or frequent interactions with suppliers or supporters of Web 2.0 technologies obtain and thus provide more and higher-quality knowledge than institutions that do not (Joo 2011). Yet suppliers help users to understand content-engagement capacity but not necessarily absorptive capacity. Although suppliers can provide such help, this task is more suited to professors, who cultivate the specific use of Web 2.0 technologies as well as students' knowledge acquisition and absorption capabilities.

Consequently, in higher education institutions, teachers learn from experts, in turn enabling effective responsible communication, adapting its content appropriately and heightening awareness of the need for classroom technology applications to match students' needs (Manly et al. 2015; Özdener 2018). In other words, suppliers foster content-engagement of individuals (students and professors), but professors foster students' content-engagement and thus their capacity to absorb necessary knowledge. Following Hirsh-Pasek et al. (2015), professors should provide ways to achieve a complete learning process and absorptive capacity by combining formal and informal learning.

Web 2.0 strategic support from all possible stakeholders will increase users' ability selectively to extract and absorb the data required from a large body of information. Suitable support from higher institutions and professors is thus beneficial in helping students to increase high-quality absorptive capacity (Hajli and Lin 2016).

Allocating more resources and improving Web 2.0 strategic support can foster communication and coordination, encourage integration of technology (Zhao et al. 2010) and enhance students' technological and absorptive competencies (Bennett et al. 2012; Martín-Rojas et al. 2013). In view of these considerations, the following hypothesis is proposed:

H2: Web 2.0 strategic support positively influences students' absorptive capacity.

2.2 Influence of Web 2.0 technology use on absorptive capacity and influence of absorptive capacity on learning CSR and social entrepreneurship

Students increasingly use social media in general and Web 2.0 technologies in particular for knowledge acquisition. These technologies have the potential to increase students' cultural and technological competencies by engaging them with other resources through diverse digital communication media (Ertmer et al. 2011). For instance, using the professional resources provided by Facebook, Twitter or YouTube from a professional perspective can foster students' capacity not only to access new

knowledge but also to share this knowledge and learn from it. According to Hartshorne and Ajjan (2009), Web 2.0 technology use can improve students' learning, dissemination and writing ability – absorptive capacity – and change their role from passive to active learners.

Learning processes that apply Web 2.0 technologies are being used to enhance the learning experience not only in higher education (Bennett et al. 2012) but also in primary and secondary schools (Pifarré and Li 2012). Wikis, podcasts, mobile apps, teaching games, blogs, virtual reality and simulation are among the new possibilities by which students seek and acquire knowledge, increase their absorptive capacity and reinforce proactive learning. By learning as they wish, students are more motivated and enjoy themselves because the learning task involves activities usually associated with leisure (Wei and Ram 2016; Whitaker et al. 2016). Moreover, technological learning processes such as blogging, social tagging and online collaboration enable students to acquire, assimilate, disseminate and exploit new knowledge faster than traditional learning methods. Thus, Web 2.0 technology use fosters students' absorptive capacity (Leonardi et al. 2013).

Web 2.0 technology use could provide participants with new ways to engage in meaningful teaching and learning activities, motivating teachers and students to use this technology in class to absorb and exploit knowledge (Lin and Jou 2012). For instance, YouTube and podcasts are valuable sources of training materials to disseminate organisational knowledge and enhance absorptive capacity. A recent study showed that participants in a Web-enhanced class outperformed those who experienced a traditional lecture format, as Web 2.0 technologies enhance convenience, flexibility and access to information and knowledge (Wei and Ram 2016). Scott et al. (2016) reports another example of these benefits: out-of-classroom learning through creation of an enterprise social network system to equip students to absorb new knowledge more quickly. Thus, the more that students use Web 2.0 technologies, the more they develop absorptive capacity. This conclusion is consistent with learning theory: the more active the individual's (student's) experimentation, the better the abstract conceptualisation (absorptive capacity) he/she develops (Mainemelis et al. 2002). Using Web 2.0 technologies in class engages students in learning activities and interactions, facilitating learning reflection and presentation.

In short, Web 2.0 technology use is transforming traditional, formal lessons into an informal learning format, especially in the field of higher education, and expanding students' absorptive capacity by encouraging them to seek their own multimedia content, share knowledge acquired, customise their personal knowledge base

(Greenhow et al. 2009) and collaborate with others to achieve their goals (whether technological, economic, environmental or social). Accordingly, we propose the following hypothesis.

H3: Web 2.0 technology use positively influences students' absorptive capacity.

In the current economic crisis, some governments are clearly unable to meet social needs due to inherent inconsistencies or the scandal-ridden corporate world. Such situations are inspiring individuals and groups "to change the world" by incorporating social issues into their entrepreneurial intentions (Bornstein 2004). In the workplace, workers share information on topics such as labour relations and welfare, occupational training and study facilities, or protection of female workers' rights (Fen Tseng et al. 2010) to stay up to date and awaken mindfulness of social values in firms and society. Enhancing absorptive capacity can help workers to recognise, absorb, integrate and apply new external knowledge to become more competitive in their jobs (Cohen and Levinthal 1990). The university's proximity to the workplace (Zeinabadi 2013) could enable students with absorptive capacity in the context of higher education to exploit knowledge acquired. Such students can recognise the value of this knowledge, assimilate it and combine it with pre-existing knowledge to apply it subsequently to the requirements of their learning process (Cohen and Levinthal 1990; Mariano and Walter 2015). Such absorption is especially likely in the case of social issues (Pless 2012). Furthermore, social enterprises are agents of change whose purpose is to create social values that are sustainably distinct from economic values (Dart 2004).

In parallel with social enterprises, universities can play a social role by posing questions about social and economic values (Campos-Climent and Sanchis-Palacio 2017; Nicholls 2007). The absorptive capacity developed at university (Greenhow et al. 2009; Lin and Jou 2012) in the field of social entrepreneurship is thus likely to include concepts such as integrity, social values and their necessity in the business world (Mueller 2011; Manly et al. 2015). Learning will be enhanced primarily when professors explain social values. For example, their classes will recognise the consequences of not being socially responsible (Brunton and Eweje 2010), and professors who teach through an active methodology will increase student involvement in the learning process (Toro and Arguis 2015). Learning CSR in information management and communication enhances development of corporate social public and performance management of social systems (Fernández 2005; Fen Tseng et al. 2010).

Increasing social mindfulness in students' absorptive capacity can exploit their skills to learn effectively in this field, assimilate this social knowledge and decide how to use

it in business start-up. It may also help them to perform better or undertake new initiatives more in line with social values (Tho and Tho 2017). We must promote absorption of social values among students to produce future entrepreneurs in whom social commitment is a factor determining value creation for stakeholders (Young 2012; Ebrahim et al. 2014).

Students' absorptive capacity is fundamental to development of social entrepreneurship, as commercial survival can depend on possession and application of particular skills (Cornelius et al. 2008). These skills may be viewed as a means of generating value for society as well as for commercial benefit (Campos-Climent and Sanchis-Palacio 2017). Learning theory supports such thinking because knowledge is considered as a mental representation actively built up by the cognising subject (Millwood 2011). Furthermore, increasing students' absorption skill (absorptive capacity) through social values can generate a social learning environment (Dewey 1938), thereby encouraging social entrepreneurship (Campos-Climent and Sanchis-Palacio 2017).

Research shows acquisition, dissemination and exploitation of external social knowledge (i.e., absorptive capacity) to be strong antecedents of social entrepreneurship and of generation of social value (Di Domenico et al. 2010). Studies also show that social issues related to students' absorptive capacity can be a source of sustainable competitive advantage for social enterprises (Campos-Climent and Sanchis-Palacio 2017). Therefore, we propose the following hypothesis.

H4: Students' absorptive capacity is positively associated with their likelihood of undertaking social entrepreneurship.

In the current environment, the Global Reporting Initiative (Fernández 2004) shows that economic, green-environment and social issues, as well as training in CSR, are key factors for entrepreneurial success. These factors are especially relevant in the university, where future leaders are acquiring core knowledge (Byerly et al. 2002) that will help them keep social issues in mind in their future enterprises (Angelidis and Ibrahim 2002; Nicolaides 2006; Othman and Ab Wahid 2014). The knowledge acquired at university thus helps students to comprehend and assimilate concepts of CSR. This knowledge equips future entrepreneurs with skills valuable to implementation of socially responsible strategies (Fen Tseng et al. 2010). The United Nations Global Compact encourages academic institutions to help shape the attitudes and behaviour of business leaders through entrepreneurship education, and calls on all higher

education institutions to support this process and participate actively in a global platform (UN 2007).

Enhancing students' absorptive capacity may develop their proactive environmental, social and sustainability-oriented strategies (Delmas et al. 2011; Sáenz et al. 2014). Examining the relation between environmental management practices and personal capabilities, Hofmann et al. (2012) suggest that companies, universities and other higher education institutions should develop specific competencies before committing to sustainability initiatives. Moreover, effective implementation of socially responsible business policies requires educational institutions and students to absorb the information needed to introduce sustainability policies, strategies and processes (Upstill-Goddard et al. 2016). Increasing students' absorptive capacity at university through Web 2.0 technology use (Leonardi et al. 2013) should produce lasting changes in the way students learn and promote social entrepreneurship programs during their studies (Fernández 2005). Following learning theory's argument that students need specific explanations to build their own knowledge (Millwood 2011), practice in incorporating social issues into their lessons will enable professors to achieve a learning environment that focuses on social responsibility (Dewey 1938).

Similarly, in the field of business, management and implementation of CSR policies are usually associated with underlying capabilities that companies must acquire before committing to business initiatives (Hofmann et al. 2012). This association explains why companies develop these capabilities through available personnel (Love et al. 2000). Along similar lines, Galbreath et al. (2016) argue that new knowledge stems from combining prior understandings and beliefs. This is especially true for environmental issues, since variables such as climate change or atmospheric events can pose a severe challenge to companies. Companies with greater information absorption capacity will better interpret the potential impact of these changes and adapt to them. They may even discover new opportunities to exploit this knowledge. As absorptive capacity is essential to sustainability and social responsibility (Quinn and Dalton 2009), we propose the following hypothesis.

H5: Students' absorptive capacity is positively associated with better student learning of CSR.

2.3 Influence of learning CSR on social entrepreneurship

As CSR is part of the core business, future business leaders must include the various dimensions of CSR in their strategies and in the organisation's operations—both its

strategic plan and its day-to-day activities (Damali 2006). CSR and social entrepreneurship are closely related to creation of sustainable social value, but they do not obtain this value in the same way. Each has a distinct conceptual approach, but combining them is essential to recovering social opportunities in a sustainable way (Crisan and Borza 2012). CSR is an important lever in support of social entrepreneurship (Austin et al. 2006, 2007), as accepting CSR implies a commitment to improve society through business practices (Kotler and Lee 2005). The company's participation in society involves practices contributing positive relationships with communities and society (Waddock 2004).

Universities must thus provide the skills and knowledge necessary to determine the social, ethical and environmental impact of business activities (Brampton and Maclagan 2005). Learning CSR issues should be incorporated into the curricula to give future professionals the sensitivity needed in matters of ethics and social responsibility (Angelidis and Ibrahim 2002; Nicolaides 2006) and equip them to address problems that may arise in these areas (Broadbent et al. 2010). The teaching and internalisation of strategies for sustainability and social responsibility will contribute to formation of a specific culture and vision: that of the social entrepreneur, with a vision of value creation through discovery of innovative approaches to integrate social, environmental and economic problems into business strategies (Kurucz et al. 2008). Thus, a social entrepreneur must pursue a three-fold objective: environmental, economic and social. The social objective is to integrate persons at risk of poverty or exclusion into the workforce. It may also consist of providing quality service to communities with difficulty accessing the service through other means. The economic objective is to perform an economic activity with an appropriate level of effectiveness and efficiency to guarantee the firm's business viability. Finally, the environmental objective is to use (increasingly scarce) environmental resources without compromising their availability to future generations (Low 2006; Spear et al. 2009).

The question of social entrepreneurship should be approached, discussed and cultivated through education on sustainability and CSR to lay the foundations for a culture of socially responsible business among students that benefits the community (Othman and Ab Wahid 2014). Studies show that university education in CSR-related issues encourages students' commitment to sustainable products and competitive human capital (Christensen et al. 2007; Fen Tseng et al. 2010; Othman and Ab Wahid 2014). Based on learning theory research, learning styles that specialise in experience (e.g., social specialisation) develop stronger interpersonal skills (Mainemelis et al. 2002). Focusing on the student's learning of CSR issues could increase promotion of

social entrepreneurship. Moreover, education should cultivate a spirit of companies acting in a socially responsible way by honing students' business *and* social skills. Such integration of social entrepreneurship into teaching and learning encourages the emergence of future business leaders who promote social entrepreneurship (Othman and Ab Wahid 2014). Therefore, our final study hypothesis is as follows.

H6: Learning CSR positively influences students' intentions towards social entrepreneurship.

3. Methodology and results

3.1 Data collection

Initially, a pilot study was performed to obtain qualitative feedback on issues such as social entrepreneurship, absorptive capacity, learning CSR and the use of social media. The questionnaire was designed after interviewing university teachers, researchers and experts in this field. This approach enabled us to fine-tune various aspects of the survey instrument. Students were then interviewed to determine whether they were familiar with the terms social entrepreneurship and CSR, what these expressions meant to them, and which mechanisms were used to acquire, transfer and use new knowledge. Other areas addressed included frequency of use of social media tools (such as blogs, microblogs, social networking, video sharing and photo sharing), relevance to students' lives of the social media used, strategic aspects that might encourage such use, barriers to successful application of social media, and the question whether social media help students gain a competitive advantage based on knowledge.

The initial structured research questionnaire was developed from previous research findings (e.g., Lane and Lubatkin 1998; Bennett et al. 2012; Othman and Ab Wahid 2014; Tho and Tho 2017) and the knowledge acquired from the qualitative interviews. More in-depth information was obtained in the qualitative interviews with individuals than in the quantitative studies (producing more descriptive information). Thematic and content analysis were used to study the qualitative data and design. The initial questionnaire was completed by ten university professors and twenty-five students in the final year of an undergraduate degree programme in management. On the basis of their feedback, some questionnaire items were modified slightly or redesigned for greater clarity and precision prior to application of the final version.

The European Union supports the view that social entrepreneurship contributes to reducing inequalities and fosters social cohesion. Since its inception, the EU has

promoted CSR as a means of achieving sustainable growth and has paid close attention to Web 2.0 technology use. However, very little empirical research has been conducted to unite these concepts, for example, to investigate how to exploit professional social media (our study analyses social media from a professional rather than a personal perspective) to enhance social entrepreneurship and responsibility.

The study population (425 students) consisted of final-year students from different undergraduate degree programmes enrolled in the course "Business Start-up" and registered in the class's continuous assessment system. The class was delivered in the Faculty of Economics and Business Sciences of the University of Granada (Spain). The students were selected as key informants (e.g., Hall and Berardino 2006) because they had knowledge of all concepts in question and through the course had acquired knowledge about enterprise creation, planning, decision-taking and the performance of actions to achieve organisational goals.

Studying a homogeneous geographical, legal, political and cultural space enabled us to reduce the impact of variables that cannot be controlled in empirical research. One aim of the Business Start-up course is to encourage students to create their own businesses. Accordingly, the course teaches basic scientific and technical knowledge about enterprise creation and the preparation of a business plan, and attempts to foster entrepreneurial spirit and transmit the skills required to establish a new business.

The students were informed of the research aims and were assured that the data obtained would be anonymised and presented only in aggregate terms. These measures reduced possible desirability bias. In total, 201 students completed the survey between February and June 2017, giving a response rate of 47.29% (Table 1). The T-statistics and chi-square values calculated confirmed that there were no significant differences among students or professors in the different undergraduate degree programmes, or between early and late respondents (Armstrong and Overton 1977).

Insert Table 1

3.2 Measures

3.2.1 Web 2.0 strategic support

Drawing on the approach in previous studies (Suh et al. 2011; Kärkkäinen et al. 2013; Choudhury and Harrigan 2014; Jussila et al. 2014; Harrigan et al. 2015), we applied a 7-point Likert scale (ranging from 1 *"Totally disagree"* to 7 *"Totally agree"*) to nine questionnaire items. Confirmatory factor analysis was used to validate the scale to measure Web 2.0 strategic support in the classroom or learning process (professionally

oriented Web 2.0 perspective). The analysis revealed high validity and reliability (χ^2_{27}=111.09, Normed Fit Index [NFI]=.98, Non-Normed Fit Index [NNFI]=.98, Goodness of Fit Index [GFI]=.76, Comparative Fit Index [CFI]=.98 and Incremental Fit Index [IFI]=.98).

3.2.2 Web 2.0 technology use

This variable was measured in terms of actual Web 2.0 technology use. Following previous research practice (Rothschild 2011; Sigala 2011; Choudhury and Harrigan 2014), we measured frequency of use of different Web 2.0 technologies, from a professional perspective, by means of a 7-point Likert scale (ranging from 1 "*Never*" to 7 "*Every time*") applied to seven items (χ^2_{14}=50.53, NFI=.97, NNFI=.97, GFI=.82, CFI=.98, IFI=.98). All measures corroborated the scale's validity and reliability.

3.2.3 Absorptive capacity

Prior studies have designed scales to measure different aspects of absorptive capacity, such as knowledge acquisition, assimilation, transformation and exploitation. Following Jimenez et al. (2011), we applied a 7-point Likert scale adapted to the educational context (ranging from 1 "*Totally disagree*" to 7 *"Totally agree"*) to six questionnaire items in order to measure absorptive capacity. Confirmatory factor analysis was conducted to validate this scale (χ^2_9=13.84, NFI=.99, NNFI=.99, GFI=.91, CFI=.99, IFI=.99). The results showed the scale's high validity and reliability.

3.2.4 Learning CSR

Following Rodríguez et al. (2015) and Fen Tseng et al. (2010), we applied a 7-point Likert scale (ranging from 1 "*Never*" to 7 "*Every time*") to five questionnaire items. Confirmatory factor analysis to validate the scale recommended deletion of Item 1 (χ^2_9=15.36, NFI=.98, NNFI=.94, GFI=.94, CFI=.98, IFI=.98), after which the scale's validity and reliability was verified.

3.2.5 Social entrepreneurship

Following previous studies (Mueller 2011; Kraus et al. 2017), we applied a 7-point Likert scale (ranging from 1 "*Totally disagree*" to 7 *"Totally agree"*) to fifteen questionnaire items to measure social entrepreneurship. The items asked about social

innovativeness, social risk-taking, social proactiveness, socialness and social market orientation. The confirmatory factor analysis conducted to validate the findings (χ^2_{90}=496.61, NFI=.95, NNFI=.96, GFI=.56, CFI=.96, IFI=.96) showed that the scale had high validity and reliability.

3.3 Measurement model

Structural equation modelling (SEM) is commonly employed in the social sciences because it enables the analyst to determine relationships between observable variables and unobserved constructs (latent variables) by breaking down the total effect of one variable on another into indirect and direct effects. SEM also makes it possible to determine and validate a process or model by examining whether the proposed model produces a population covariance matrix consistent with the sample covariance matrix. The process estimates and compares the parameters in question with the sample covariance matrix. Goodness of fit statistics then determines whether the model is appropriate or needs further revision. This technique enables us to construct unobservable variables, measured by indicators, and estimate the error of the observed variables. Hence, SEM takes into account measurement errors, variables with multiple indicators and multiple-group comparisons (Koufteros et al. 2009).

The study data were analysed using LISREL 8.8 (Linear Structural Relations) statistical software, and following the two-step modelling approach described by Anderson and Gerbin (1988). First, a measurement model was constructed to observe the relations between latent variables and their indicators. This measurement model (Table 2) presents very good model fit (χ^2 (769 d.f.) =1556.77 (p>0.01); NFI=0.97; NNFI=0.99; IFI=0.99; Parsimony Goodness of Fit Index [PGFI]=0.50; Estimated Non-centrality Parameter [NCP]=787.77; Relative Fit Index [RFI]=0.97; CFI=0.99; Root Mean Square Error of Approximation [RMSEA]=0.07). Satisfactory results were obtained for internal consistency and reliability, as measured by Cronbach's alpha (ranging from 0.90 to 0.97), composite reliabilities (ranging from 0.92 to 0.98) and average variance of extracted coefficients (ranging from 0.69 to 0.89). Each factor for the Cronbach's alpha presented a value >0.8, indicating good internal consistency. Similarly, each factor's composite reliability was >0.7 and the average variance extracted (AVE) 0.5, indicating good construct reliability (Fornell and Larcker 1981; Hair et al. 2010). In addition, the factor loadings were appropriately significant. Each loading (λ) was significantly related to its underlying factor (t >11.66), corroborating convergent validity.

Insert Table 2

The measurements obtained also presented discriminant validity, confirmed as follows. First, we examined the cross loading, and observed that no item loaded more strongly on another construct than on its own. Second, we confirmed that the squared correlation between each pair of constructs was lower than the average variance extracted (Table 3) by applying the Fornell-Larcker criterion to compare the square root of the average variance extracted with the correlation of the latent construct. According to this procedure, each latent construct should explain the variance of its own indicator better than that of other latent constructs (i.e., the square root of each construct's average variance extracted was greater than the correlations with other latent constructs). Furthermore, the chi-square difference test was applied to the values obtained for the constrained model (in which the the estimated correlation parameter between each pair of constructs was constrained to 1.0) and for the unconstrained model, revealing significant differences. The constructs were thus not perfectly correlated, confirming the presence of discriminant validity (Fornell and Larcker 1981; Anderson and Gerbin 1988).

Insert Table 3

The absence of common method bias was tested via several procedures. First, the respondents were clearly informed of the study goals and the anonymous nature of the study data. Respondents were assured that there were no right or wrong answers and were urged to answer the questions honestly. Moreover, validated and well-tested scales were used, with minimal item ambiguity and randomised item order (Podsakoff et al. 2003; Pandey et al. 2008). Second, several questions were reverse coded to reduce possible common method and social desirability bias (Malhotra et al. 2006). These measures prevented respondents from easily combining related items and identifying the correlation needed to produce a common-method-variance-biased pattern of responses (Murray et al. 2005). Third, Harman's one factor test was performed, to determine whether variance in the data derived mainly from a common method source (Podsakoff and Organ 1986; Konrad and Linnehan 1995). The principal component factor components (with eigenvalues >1.0) explained over 80% of the variance. These results suggested that there was no substantial common method bias among the scales. Fourth, confirmatory factor analysis was conducted to test for common method bias, comparing a one-factor model to the measurement model. This test revealed a worse fit for the one-dimensional model (χ^2 (527 d.f.)=6352.82 (p=0.000); NFI=0.89; NNFI=0.90; IFI=0.90; PGFI=0.23; NCP=5573.82; RFI=0.88; CFI=0.90; RMSEA=0.189) than for the measurement model, confirming that common

method bias was not a serious problem. Fifth, a first-order factor (common latent factor) was added to each of the measures as an indicator of the theoretical model. The results showed no differences greater than 0.2 between indicator loadings before and after adding the common latent factor. These results demonstrate that common method bias is not a problem (Podsakoff et al. 2003). Taking into account the outcomes of the different tests performed, we conclude that the data were not seriously affected by common method bias.

3.4 Structural model

Following the two-step approach proposed by Anderson and Gerbin (1988), we created a recursive non-saturated model for the measurement model and the theoretical construct (Fig. 1). To do so, we used a recursive non-saturated model with Web 2.0 strategic support (ξ_1) as the exogenous latent variable, Web 2.0 technology use (η_1) as the first-grade endogenous latent variable and absorptive capacity (η_2), learning CSR (η_3) and social entrepreneurship (η_4) as the second-grade endogenous latent variables.

Insert Figure 1

The hypotheses were then tested to determine the direct, indirect and total effects, using the covariance and asymptotic covariance matrices as inputs for structural equation modelling (Table 4). The standardised paths obtained reflect a significant relationship between the constructs (Fig. 2). The overall fit of the structural model is good (χ^2 (773 d.f.)=1570.82 (p>0.01); NFI=0.97; NNFI=0.99; IFI=0.99; PGFI=0.50; NCP=797.82; RFI=0.97; CFI=0.99; RMSEA=0.07). All relationships were found to be statistically significant at p=0.001 except that between Web 2.0 technology use and absorptive capacity, which was significant at p=0.05. We conclude, therefore, that the study hypotheses are supported.

Consistent with H1, Web 2.0 strategic support is positively associated with Web 2.0 technology use (γ_{11}=0.61 *p*<.001). Web 2.0 strategic support is related to absorptive capacity (γ_{21}=0.72 *p*<.001), which is also associated with Web 2.0 technology use (β_{21}=0.18 *p*<.05). Furthermore, there is an indirect effect of Web 2.0 strategic support via Web 2.0 technology use (0.61x0.18) on absorptive capacity (0.11, p<.05, see Bollen, 1989 for calculation rules). The total influence of Web 2.0 strategic support on absorptive capacity is thus 0.83 (p<.001), corroborating H2 and H3. On comparing the magnitudes of these effects, we observe that the effect of Web 2.0 strategic support on absorptive capacity is larger than that of Web 2.0 technology use on absorptive capacity. Globally, absorptive capacity (R^2=0.70) and Web 2.0 technology use

(R^2=0.37) are well explained by the model. Absorptive capacity is related to social entrepreneurship (β_{42}=.33, *p*<.001) and to learning CSR (β_{32}=.72, *p*<.001). Learning CSR is similarly associated with social entrepreneurship (β_{43}=.58, *p*<.001). Through learning CSR, there is an indirect effect of absorptive capacity (0.72x0.58) on social entrepreneurship (0.42, p<.001). The total influence of absorptive capacity on social entrepreneurship is thus 0.65 (p<.001). On comparing the magnitudes of these effects, we see that the effect of absorptive capacity on social entrepreneurship is larger than that of learning CSR on social entrepreneurship. These results support H4, H5 and H6. Learning CSR (R^2=0.51) and social entrepreneurship (R^2=0.72) are well explained by the model. The R^2 values for all endogenous constructs exceed 10%, implying a satisfactory and substantive model (Falk and Miller 1992). Other indirect and total effects are shown in Table 4.

Insert Table 4 and Figure 2

Finally, we compared various alternatives to confirm that the proposed structural model presented the best data representation and goodness of fit (Bollen and Long 1993; Hair et al., 2010). This comparison shows that the proposed model is the most acceptable and parsimonious (Table 5). In comparing Model 1 (the proposed structural model) with Model 2, we find that the latter has a worse RMSEA (Δ=0.002), ECVI (Δ=0.22), AIC (Δ=43.26) and NCP (Δ=44.26). Hence, Model 1 is preferred to Model 2 ($\Delta\chi^2$=45.26) and to the other models.

Insert Table 5

4. Discussion, implications, future research and limitations

To fulfil this paper's goal, we argue the importance of fostering learning CSR to promote students' social entrepreneurship and its translation into practice in future business leaders from a social perspective. We also highlight the potential of Web 2.0 strategic support and Web 2.0 technology use as new forms of teaching and absorptive capacity in higher education institutions. These tools foster absorptive capacity and CSR learning by transmitting CSR-related values and passion for CSR (Shrivastava 2010)—essential aspects of true integration and effective putting into practice of CSR. Our results confirm the current importance of CSR learning in business schools and students' future social entrepreneurship action based on the development of Business students' absorptive capacity encouraged by Web 2.0 strategic support and use.

Our contribution also stresses the importance of teaching social issues in Business programmes so that students internalise these concepts and go a step further in

initiating a social entrepreneurial endeavour, an act that pushes students to be social entrepreneurs in the future. The levels of knowledge both acquired from business schools (Tho and Tho 2017) and transferred to them will be projected into future business actions, especially in social terms.

Our results contribute to answering research questions in the prior literature that attempts to expand pedagogical approaches and tools in the area of CSR and sustainability to foster greater commitment through emotions (Audebrand 2010; Shephard 2008; Shrivastava 2010). Web 2.0 could thus be included as a useful tool in inculcating values and passion for these issues, as well as developing skills and attitudes. Students would acquire positive emotions and connection to the environment around them (Audebrand 2010), and the best way to put them into practice would be as future social entrepreneurs.

We focused on learning theory (Millwood 2011) to demonstrate students' active role in the process of learning ethics and CSR in Business classes. To do so, we took advantage of the increase in absorptive capacity of Business students at the university analysed. According to our results, the better this capacity is supported and accomplished, the better CSR learning and social entrepreneurial intention will be.

Absorptive capacity is positively associated with the development of social entrepreneurs, agents of change in society who undertake to maintain social value by recognising and pursuing new opportunities and by becoming involved in the processes of innovation, adaptation and learning (Campos-Climent and Sanchis-Palacio 2017).

We also found that promoting Web 2.0 strategic support and Web 2.0 technology use enhanced students' absorptive capacity, since this capacity is especially enabled by production and diffusion of info-knowledge. A high-quality Web 2.0 supportive infrastructure is now a vital asset for higher education institutions. Universities must invest in R&D not only directly to pursue new process and product innovation, but also to benefit from imported technology and accomplish trajectory shifts (Cohen and Levinthal 1990; Scott et al. 2016). Our findings also reinforce the European Union's (2013) requirement that institutions of higher education implement Web 2.0 technologies, with the support of educational actors (De Kraker et al. 2013), as our results positively confirm the relationship between Web 2.0 strategic support and Web 2.0 technology use.

Ethical approval

This article does not contain any studies with human participants or animals performed by any of the authors.

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Tables and Figures

Table 1: Technical details of the research

Sector	Education
Geographical location	Spain
Methodology	Structured questionnaire
Universe of population	425 students
Response size	201 students
Response rate	47.29%
Period of data collection	February to June 2017

Table 2: Measurement model results

Variables	Items	λ*	R^2	α	C.R.	AVE
Web 2.0 Strategic Support	WEBSUP1	0.92(f.p.)	0.85	0.976	0.980	0.849
	WEBSUP2	0.93***(34.26)	0.86			
	WEBSUP3	0.95***(54.35)	0.91			
	WEBSUP4	0.93***(55.30)	0.87			
	WEBSUP5	0.93***(53.65)	0.86			
	WEBSUP6	0.95***(58.30)	0.90			
	WEBSUP7	0.93***(47.55)	0.87			
	WEBSUP8	0.88***(26.40)	0.78			
	WEBSUP9	0.87***(33.39)	0.76			
Web 2.0 Technology Use	WEB1	0.74 (f.p.)	0.54	0.923	0.939	0.690
	WEB2	0.81***(14.49)	0.65			
	WEB3	0.84***(14.22)	0.71			
	WEB4	0.84***(12.72)	0.71			
	WEB5	0.94***(14.65)	0.88			

	WEB6	0.77***(11.66)	0.59			
	WEB7	0.86***(13.70)	0.74			
Absorptive Capacity	ABCAP1	0.92(f.p.)	0.84	0.975	0.981	0.899
	ABCAP2	0.95***(41.45)	0.89			
	ABCAP3	0.96***(42.65)	0.93			
	ABCAP4	0.95***(37.74)	0.90			
	ABCAP5	0.95***(40.69)	0.91			
	ABCAP6	0.96***(42.54)	0.93			
Learning CSR	LCSR2	0.91(f.p.)	0.83	0.909	0.924	0.754
	LCSR3	0.96***(28.20)	0.92			
	LCSR4	0.84***(23.41)	0.70			
	LCSR5	0.75***(15.78)	0.56			
Social entrepreneurship	SE1	0.70***(f.p.)	0.50	0.970	0.973	0.707
	SE2	0.74***(19.12)	0.54			
	SE3	0.80***(14.49)	0.65			
	SE4	0.78***(14.30)	0.61			
	SE5	0.79***(14.12)	0.62			
	SE6	0.79***(14.42)	0.62			
	SE7	0.94***(15.96)	0.88			
	SE8	0.93***(16.40)	0.87			
	SE9	0.92***(16.70)	0.86			
	SE10	0.87***(17.98)	0.76			
	SE11	0.87***(17.75)	0.75			
	SE12	0.85***(16.58)	0.72			
	SE13	0.86***(15.73)	0.73			
	SE14	0.87***(15.04)	0.75			
	SE18	0.87***(15.77)	0.76			
Goodness-of-fit statistics	χ^2_{769}=1556.77 (P>0.01) ECVI=8.70 AIC=1740.77 CAIC=2136.67 NFI=0.97 NNFI=0.99 IFI=0.99 PGFI=0.50 PNFI=0.91 NCP=787.77 RFI=0.97 CFI=0.99 RMSEA=0.07					

Notes: λ* = Standardised structural coefficient (t-students are shown in parentheses; f.p.=fixed parameter); R^2=Reliability; C.R.=Composite reliability; AVE=Average variance extracted; *** p< 0.001 (two-tailed).

Table 3: Discriminant validity

Variable	1	2	3	4	5
1. Web 2.0 strategic support	**0.849(0.921)**	0.581	0.801	0.679	0.694
2. Web 2.0 technology use	0.337	**0.690(0.830)**	0.591	0.406	0.433
3. Absorptive capacity	0.641	0.349	**0.899(0.948)**	0.668	0.729
4. Learning CSR	0.461	0.164	0.446	**0.754(0.868)**	0.764
5. Social entrepreneurship	0.481	0.187	0.531	0.583	**0.707(0.840)**

Notes: Numbers on the diagonal show the AVE (in brackets, the square root of AVE). Numbers below the diagonal represent the squared correlation between the constructs. Numbers above the diagonal represent the correlation between the constructs (95%).

Table 4: Direct, indirect and total effects obtained for the proposed structural model

Effect from	To		Direct effects[a]	t	Indirect effects[a]	t	Total effects[a]	t
Web 2.0 strategic support	→	Web 2.0 technology use	0.61***	8.64			0.61***	8.64
Web 2.0 strategic support	→	Absorptive capacity	0.72***	7.55	0.11*	2.22	0.83***	14.86
Web 2.0 strategic support	→	Learning CSR			0.59***	8.78	0.59***	8.78
Web 2.0 strategic support	→	Social entrepreneurship			0.62***	7.48	0.62***	7.48
Web 2.0 technology use	→	Absorptive capacity	0.18*	2.16			0.18*	2.16
Web 2.0 technology use	→	Learning CSR			0.13*	2.25	0.13*	2.25
Web 2.0 technology use	→	Social entrepreneurship			0.13*	2.26	0.13*	2.26
Absorptive capacity	→	Learning CSR	0.72***	13.32			0.72***	13.32
Absorptive capacity	→	Social entrepreneurship	0.33***	4.69	0.42***	7.21	0.65***	10.68
Learning CSR	→	Social entrepreneurship	0.58***	7.94			0.58***	7.94
Goodness of Fit Statistics	χ^2_{773}= 1570.82 (P>0.01) ECVI=8.73 AIC=1746.82 CAIC=2125.51 NFI=0.97 NNFI=0.99 IFI=0.99 PGFI=0.50 NCP=797.82 RFI=0.97 CFI=0.99 RMSEA=0.072							

Note: [a] Standardised structural coefficients; *p<.05;**p<.01;***p<.001(two-tailed).

Table 5: Proposed structural model vs. alternative statistical model

Model	Description	χ^2	$\Delta\chi^2$	RMSEA	ECVI	AIC	NCP
1	Proposed structural model	1570.82		0.072	8.73	1746.82	797.82
2	N.R. Web 2.0 strategic support to absorptive capacity	1616.08	45.26	0.074	8.95	1790.08	842.08
3	N.R. Web 2.0 technology use to absorptive capacity	1578.78	7.96	0.072	8.76	1752.78	804.78
4	N.R. Absorptive capacity to social entrepreneurship	1582.95	12.13	0.072	8.78	1756.95	808.95
5	N.R. Learning CSR to social entrepreneurship	1600.73	29.91	0.073	8.87	1774.73	826.73

Notes: N.R. = No relationship

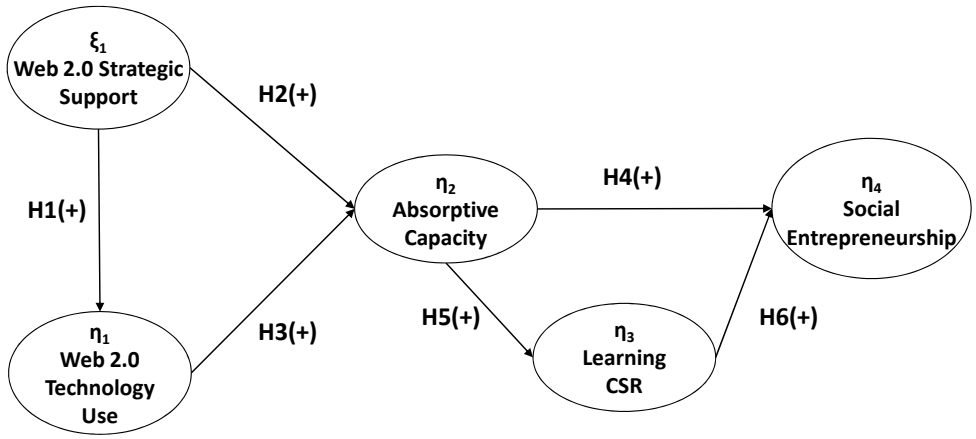

Figure 1: Research model and hypotheses

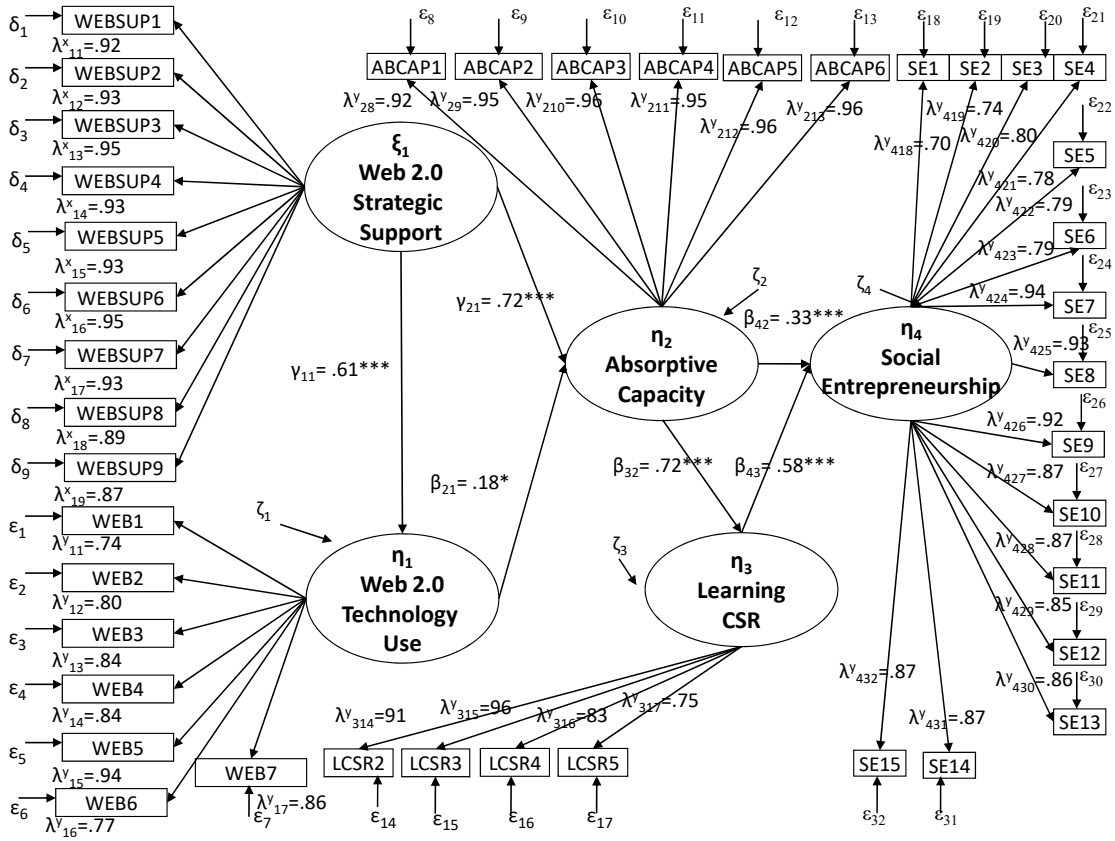

Figure 2: Structural result of proposed model