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ABSTRACT

The purpose of this study was to develop a new measure for the absorptive capacity (ACAP) construct, specifically in the educational system. Exploration of this construct involved developing, field testing, and validating an ACAP-measuring instrument, followed by exploratory and confirmatory factor analyses of the items to examine factorial validity. Two samples were derived to examine the construct’s validity. The developed scale was correlated with other established work-related constructs (e.g., teacher’s affective commitment). It was found that the four ACAP dimensions underlying potential (acquisition and assimilation) and realized (transformation and exploitation) ACAP are not only theoretically but also empirically distinguishable.

In recent years, a number of terms have been utilized to characterize an organization’s ability to acquire new knowledge: learning organizations (e.g., Berson, Da’as, & Waldman, 2015; Senge, 1990), knowledge creation (Nonaka & Takeuchi, 1995), and knowledge management (Davenport & Prusak, 1998). All of these concepts are helpful in understanding some of the mechanisms associated with the notion of “organizational learning” (Jones & Craven, 2001). Organizational learning is a critical component in achieving school effectiveness, and schools that function as learning organizations perform better than those that do not (e.g., Mulford & Silins, 2011). Such schools develop learning processes, strategies, and structures that strengthen their capacity to react effectively to change, thereby continuing to function efficiently even in uncertain and dynamic environments (Fauske & Raybould, 2005; Louis, 2006).

To deal with the dynamic and turbulence of the organizational environment, schools must focus their attention on knowledge as a dominant source of competitive advantage (e.g., Zuckerman, Campbell Wilcox, Schiller, & Durand, 2018). Thus, organizations need to recognize new external knowledge, assimilate it, and apply it to organizational processes (Cohen & Levinthal, 1990; Volberda, Foss, & Lyles, 2010). This ability is referred to as absorptive capacity (ACAP) (Cohen & Levinthal, 1990), and is a prevalent notion in strategy and organizational research. According to Cohen and Levinthal (1990), an organization’s ACAP does not simply depend on the organization’s direct interface with the external environment; it also relies on the transfer of knowledge across and within subunits and on the capacity to apply that knowledge. That is to say, ACAP is an organizational process (Cohen & Levinthal, 1990; Ferreras Méndez, Sanz Valle, & Alegre, 2018; Flor & Oltra, 2013) that depends on the organizational context and practices. Specifically, the notion of ACAP draws attention to the need to appreciate and acquire new knowledge from the external environment, while simultaneously focusing on internal processes of learning from past experience and current actions (Easterby-Smith, Graça, Antonacopoulou, & Ferdinand, 2008). A high ACAP depicts the school’s high ability to exploit and transform this knowledge from
teachers who acquire it from external resources and assimilate it to the school process, promoting the school’s high effectiveness (Zuckerman et al., 2018).

Since Cohen and Levinthal (1989), Cohen & Levinthal (1990) published their work on ACAP, much empirical and theoretical work has been devoted to analyzing the ACAP of organizations, and conceptualizing the concept (e.g., Camisón & Forés, 2010; Flattén, Engelen, Zahra, & Brettel, 2011; Jansen, Van Den Bosch, & Volberda, 2005; Roberts, Galluch, Dinger, & Grover, 2012; Umrami, Ahmed, & Memon, 2015; Zahra & George, 2002). However, little research has been performed in the framework of educational systems (Zinkeviciene, 2004; Zuckerman et al., 2018). The aim of this study was to develop and field test an instrument designed to measure ACAP in the school context, and determine its validity and reliability. Despite growing interest in this topic, few have captured the richness and multidimensionality of the concept (i.e., Flattén et al., 2011; Jansen et al., 2005). Moreover, we could not find any research that designed or validated a measure of ACAP specifically for the field of education (school context).

Research in the latter domain has emphasized the importance of managing knowledge derived from external sources, using qualitative research (e.g., Zuckerman et al., 2018). Zuckerman et al. (2018) used a cross-case analysis to examine leadership strategies (i.e., buffering, bridging, and brokering, mechanisms and processes of shared goal setting, ongoing curriculum revision) and coherence in allowing leaders and educators to assimilate, transform, and create new knowledge in ways that provide ACAP and allow for selective implementation of disruptive innovations.

Recent research has focused on the role of ACAP in innovation (Flattén et al., 2011; Kang & Lee, 2017; Kostopoulos, Papalexandris, Papachroni, & Ioannou, 2011; Tsai, 2001), intraorganizational knowledge transfer (Gupta & Govindarajan, 2000; Saraf, Liang, Xue, & Hu, 2013; Szulanski, 1996), business performance (Khan et al., 2017; Lane, Salk, & Lyles, 2001; Tsai, 2001), organizational competitive advantage (Cohen & Levinthal, 1989, 1990; Prahalad & Hamel, 1990; Zobel, 2017), flexibility (Sterman, 2001), and interorganizational learning (Lane & Lubatkin, 1998; Lane et al., 2001; Saraf et al., 2013). Developing a measure for ACAP with tested validity, richness, and multidimensionality in the educational field is expected to have important theoretical and applied implications for school learning, effectiveness, and innovation. Furthermore, for schools, and for school leaders who have a significant role in improving school outcomes such as students’ achievements (Hallinger, 2011), ACAP may provide a means to buffer external policy changes by providing opportunities to assimilate and transform new knowledge into existing practices, rather than replacing them with standardized ones (Zuckerman et al., 2018).

**Conceptual framework**

ACAP is clearly related to organizational learning (Lane, Koka, & Pathak, 2006). Researchers have argued that the notion of ACAP is similar to the feed-forward (exploration of new idea) and feedback learning (exploitation of ideas that come from higher levels in the organization) processes of an organization (Crossan, Lane, & White, 1999; Sun & Anderson, 2010; Vera & Crossan, 2004). Following a process-based view, Lane et al. (2006) positioned ACAP within an expanded exploration/exploitation learning framework, and related three ACAP processes (identify, assimilate, and apply external knowledge) to three learning processes (exploratory, transformative, and exploitative learning). Exploratory learning is used to recognize and understand new external knowledge. Transformative learning combines new and existing knowledge, thereby allowing organizations to effectively assimilate valuable external knowledge. Finally, exploitative learning consists of applying the assimilated external knowledge.

Roberts et al. (2012) offered a distinction between ACAP and organizational learning, in three dimensions: construct versus concept; active versus passive; external versus internal. ACAP is considered to be a construct with well-defined assumptions and boundary conditions, and organizations must actively increase their ACAP and focus on the role of external knowledge. On the other hand, organizational learning is a broad concept that encompasses a variety of processes and constructs—organizations can learn actively or passively—and spans both internal and external knowledge.
Despite the above differences between ACAP and organizational learning, we cannot isolate ACAP from organizational learning because when schools acquire and utilize ACAP effectively, they become “knowledge-intensive organizations,” promoting the sharing of expertise both internally and externally, and promoting open discussion among decentralized groups throughout the organization (Starbuck, 1992). Social processing of information, an inherently collective activity, occurs rarely if at all in most schools (Berson et al., 2015). For internal knowledge in schools to become integrated with external knowledge, specifically with the organizational learning processes, external knowledge must be transformed and exploited in these processes to increase performance (Roberts et al., 2012).

Finally, learning is integrated from the individual to the team to school processes (Berson et al., 2015; Marks & Louis, 1999; Vera & Crossan, 2004), thereby improving school performance (e.g., Berson et al., 2015). Fauske and Raybould (2005) highlight the importance of relating individual learning to learning in and by the organization, because shared learning mechanisms are similar to individual learning mechanisms and routines for action, but are expressed at the organizational level as interpretive and system-structural elements. This study adopts ACAP as an organizational construct, following previous researchers’ suggestion (e.g., Leal-Rodríguez, Roldán, Ariza-Montes, & Leal-Millán, 2014). Roberts et al. (2012) argued that researchers should consider ACAP to be a collective construct. In this regard, Lipshitz, Popper, and Friedman (2002) argued that organizations have cognitive systems that enable them to acquire, perceive, and interpret information in a manner that is similar, albeit not identical, to the individual learning process. These cognitive systems can be perceived through organizational routines, which resemble individuals’ cognitive procedural memories (Cohen & Bacdayan, 1996).

**Definition of absorptive capacity**

ACAP is an organization’s ability to “identify, assimilate and exploit knowledge from the environment” (Cohen & Levinthal, 1989, p. 569). ACAP (Cohen & Levinthal, 1990) has recently been recognized as a specific type of organizational learning (e.g., Camisón & Forés, 2010; Lane et al., 2006; Saraf et al., 2013; Sun & Anderson, 2010, 2012; Zahra & George, 2002), and refers to an organization’s relationship with external knowledge (Sun & Anderson, 2010).

We adopted Zahra and George’s (2002) conceptualization of ACAP, defined as a series of routines and organizational processes through which organizations acquire, assimilate, transform, and exploit knowledge to create a competitive advantage. ACAP is a dynamic capacity that allows organizations to create value and to gain and sustain a competitive advantage through the management of external knowledge (Camisón & Forés, 2010; Ferreras Méndez et al., 2018; Flatten, Adams, & Brettel, 2015; Flor & Oltra, 2013; Lane et al., 2006; Zahra & George, 2002). Viewing ACAP as a dynamic capability also suggests that it can be changed through managerial actions that redefine and exploit the organization’s knowledge-based assets (Floyd & Lane, 2000). Thus, given the greater availability of external knowledge, a dynamic capability that influences an organization’s ability to target, absorb, and deploy the external knowledge necessary to feed the internal innovation process becomes a crucial source of competitive advantage (e.g., Cassiman & Veugelers, 2002). Organizations (e.g., schools) endowed with higher levels of ACAP will be able to extract greater benefits from external knowledge, and therefore outperform rivals in their innovation activity (Tsai, 2002), for example, acquiring new strategic methods and pedagogical reference material that improve class instruction and students’ achievements; this innovation confers a competitive advantage over other schools.

**Dimensions of absorptive capacity**

In Cohen and Levinthal’s (1990) definition, three organizational processes conforming to ACAP can be identified: identification, assimilation, and exploitation of external knowledge. Zahra and George (2002) point out four processes of ACAP: acquisition, assimilation, transformation, and exploitation of external knowledge. Thus, these researchers introduced the acquisition phase instead of Cohen and Levinthal’s
(1990) identification phase and inserted a transformation phase between those of assimilation and exploitation.

Zahra and George (2002) suggested that ACAP exists as two subsets of potential and realized ACAP. Potential capacity (PACAP) comprises knowledge acquisition and assimilation capabilities, and realized capacity (RACAP) centers on knowledge transformation and exploitation (Flatten et al., 2011; Zahra & George, 2002) (see Table 1).

**Acquisition** refers to an organization’s ability to identify and acquire externally generated knowledge that is critical to its operations (Daspit, Ramachandran, & D’Souza, 2014; Zahra & George, 2002). The ability to acquire knowledge depends on the intensity, speed, and direction of the organizational efforts to identify and collect information (Zahra & George, 2002), which can determine the organization’s knowledge quality: the larger the effort, the faster the organization can construct the required abilities (Kim, 1997).

**Assimilation** refers to the organization’s routines and processes that allow it to analyze, process, interpret, and understand information acquired from external sources (Cohen & Levinthal, 1990; Kim, 1997). Kim (1997) indicated that the assimilation process is influenced by the informal knowledge that characterizes the organization (e.g., social networks). This dimension of ACAP deals with individuals’ interpretation and understanding of knowledge. This phase of ACAP applies to the individual level more than the collective one. Certainly, knowledge assimilation describes the capacity to understand new external knowledge and link it with a prior knowledge base (Leal-Rodríguez et al., 2014).

**Transformation** assesses how well an organization facilitates the recognition of opportunities and consequences in new external knowledge for existing operations, structures, and strategies (Zahra & George, 2002). Transformation changes the character of knowledge through “bisociation,” which occurs when a situation or idea is perceived in “two self-consistent but incompatible frames of reference” (Koestler, 1989, p. 35). Thus, an organization’s ability to recognize two apparently incongruous sets of information and then combine them to arrive at a new scheme represents its transformation ability. According to Zahra and George (2002, p. 190), this dimension “denotes a firm’s capability to develop and refine the routines that facilitate combining existing knowledge and the newly acquired and assimilated knowledge.”

Finally, **exploitation** reflects the organization’s ability to exploit, collect, and integrate new external knowledge into its activities and operations (Tiernessen, Lane, Crossan, & Inkpen, 1997; Zahra & George, 2002). Exploitation denotes an organization’s capacity to improve, expand, and use its existing routines, competencies, and technologies to create something new based on the “transformed” knowledge (Del Carmen Haro-Domínguez, Arias-Aranda, Lloréns-Montes, & Moreno, 2007; Flatten et al., 2011). The outcomes are persistent creation of new goods, knowledge, and organizational forms (Spender, 1996).

Table 1 presents the different definitions of these dimensions with examples from the education context.

These four dimensions play different roles; taken together, they explain how ACAP can influence organizational outcomes (Zahra & George, 2002). According to Zahra and George (2002), the two components (PACAP: acquisition and assimilation, and RACAP: transformation and exploitation) have separate but complementary roles. Organizations cannot apply external knowledge without acquiring it. Similarly, certain organizations may develop the ability to acquire and assimilate external knowledge, but are not able to transform and apply that knowledge, or in other words, to turn it into a competitive advantage (e.g., Camisón & Forés, 2010).

In the school setting, for example, Honig (2003) suggested that organizational learning includes two processes: searching for information outside of the organization and using it within the organization’s norms concerning the behavior of organization members as individuals and the organization as a collective. Zinkeviciene (2004) stated that the relationship between ACAP and the environment can be internal or external. Internal ACAP means striving to identify the best pedagogical experience inside the organization (p. 13), such as cultures of teacher collaborations.
External ACAP is an individual or organization’s capacity to identify useful innovation outside the boundaries of their own organization and apply and develop it in their organization (p. 15). Such innovations come from departments of education, partner schools, or different projects. Externally, teachers develop their qualifications by participating in seminars, conferences, or projects. Though external ACAP is more strongly encouraged and led by more attractive activities, innovations stemming from collaborations with colleagues from other schools or countries should be very carefully selected for their suitability to a particular culture.

ACAP is a dynamic capability, suggesting the capacity to alter or change—the ability to learn from experience (such as previous school experience) (Roberts et al., 2012), in an organizational system characterized by interactions and connections (Begun, Zimmerman, & Dooley, 2003). This is also related to the complex adaptive systems (CAS) lens (Dooley, Corman, McPhee, & Kuhn, 2003), which claims that organizations are complex systems comprised of many interacting components and have the ability to self-organize, adapt, and learn from experience (Piana & Peters, 2011). Such systems are also characterized by relationships between individuals, individuals’ relationships with the environment, information flow, shared and individual schemes, and a state of equilibrium between formal and informal structures (Chiva-Gomez, 2008).

More specifically, teachers absorb external knowledge, such as information about students’ needs and behavioral changes, changes in the environment, or technological changes. Within complex school systems, the integration of learning processes depends on interactive structures within the organization; more specifically, this refers to teachers who interrelate with each other and with their surroundings and are not limited in their ability to adapt their behavior, based on their experience (prior knowledge). Thus, to effectively absorb and exploit knowledge, it is crucial to ensure the sharing of relevant knowledge among organizational members (Spender, 1996; Vargo & Lusch, 2004). Organizations develop structures in which project teams and organizational members in general operate in a knowledge-exchange system and learn from experience (Leal-Rodríguez et al., 2014). Finally, it is important to note, according to the CAS view, that we did not isolate ACAP from the general organizational learning context or organizational structure. School teachers play the role

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Definition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td>Acquisition denotes an organization’s ability to identify and obtain relevant information from outside sources (Umrani et al., 2015, p. 1054).</td>
<td>● Example: the knowledge gained from teachers’ continuing academic education or previous experiences</td>
</tr>
<tr>
<td>Assimilation</td>
<td>Assimilation refers to an organization’s ability to develop processes and routines that are useful in analyzing, interpreting, and understanding externally acquired knowledge (Flatten et al., 2011). Assimilation capacity refers to an organization’s capacity to absorb external knowledge. It reflects the organization’s capability of understanding new knowledge (Daspit et al., 2014).</td>
<td>● Example: the teachers use information that they have acquired from continuing academic studies in the framework of their professional role at the school.</td>
</tr>
<tr>
<td>Transformation</td>
<td>Transformation may be achieved by adding or eliminating knowledge, or by interpreting and combining existing knowledge in a different, innovative way (Flatten et al., 2011; Leal-Rodríguez et al., 2014). It reflects the capability to combine new and existing knowledge (Daspit et al., 2014).</td>
<td>● Example: the knowledge gained by the teachers from external sources contributes to the performance of their daily work in the school.</td>
</tr>
<tr>
<td>Exploitation</td>
<td>Zahra and George (2002) define exploitation as “an organizational capability that is based on the routines that allow firms to refine, extend, and leverage existing competencies or to create new ones by incorporating acquired and transformed knowledge into its operations” (p. 190). It reflects the capability to create change or refinement (Daspit et al., 2014).</td>
<td>● Example: implementation of teachers’ acquired knowledge will contribute to effective use of school resources</td>
</tr>
</tbody>
</table>
of agents who interact and absorb knowledge from their environment to promote information flow and knowledge sharing, shared and individual schemes, and a state of equilibrium between formal and informal structures.

**Research design**

Development of the ACAP scale involved several phases: developing items based on the ACAP literature, conducting a pilot study, employing both exploratory and confirmatory factor analyses to refine the subscales and to assess the factorial validity (with two different samples), and testing the developed ACAP scale and a work-related construct (i.e., teacher’s affective commitment). Despite the huge growth in the ACAP literature, certain important gaps remain, specifically in the validation of this measure in different contexts (Flatten et al., 2011; Lane et al., 2006; Umrani et al., 2015; Van Den Bosch, Van Wijk, & Volberda, 2003), such as the educational field. These phases are described below.

**The context of the study**

This research consisted of two studies conducted in Arab schools that are part of the Israeli educational system. Schools in general, and Israeli schools in particular, provide an opportunity to study relatively autonomous organizations (e.g., Berson et al., 2015). Although the school functions as an organization, the body of teachers, especially in elementary schools which tend to be smaller than high schools, often think of themselves as a “team of teachers” (Berson et al., 2015, p. 90). This team encompasses the entire teaching staff at the school, thus forming a collective. Most of the school activities, such as weekly teacher forums, training sessions, and curriculum policy meetings, involve this entire team. Its members have a common focus on organizational tasks (e.g., curriculum building), common goals (e.g., meeting performance standards), social interaction (e.g., meetings), task interdependence (e.g., mutual reliance on information), and boundary maintenance (e.g., activities reserved for team members and competition with other teaching teams) (Berson et al., 2015).

**Development of ACAP scale**

Appropriate assessment scales for potential and realized ACAP, specifically in the educational system, were not available. The following steps were taken to develop new measures for the ACAP construct. First, we reviewed relevant literature based on the dimensions that have been defined (e.g., Cohen & Levinthal, 1989, 1990; Van Den Bosch et al., 2003; Zahra & George, 2002) and generated items to tap into the domain of each construct. A draft version of the ACAP questionnaire was devised. Next, a pilot study was completed, in which 30 teachers from four schools were asked to point out any items that were either ambiguous or difficult to answer.

Sampled schools were drawn from a list of Israeli elementary schools. Teachers’ comments regarding ACAP item clarity were evaluated, and improvements suggested by experts for this questionnaire were incorporated (suggestions for modifying, adding, and deleting items were also considered). Experts provided detailed comments that led to the modification of some items and the elimination of others. Thus, items were checked for clarity, phrasing, and relevance to their respective content domains. These steps yielded a final of the ACAP questionnaire, containing 12 items—three items for each scale. The 12 items were measured on a 5-point scale: (1 = a little bit to 5 = a lot). Teachers were asked: “The following questions address your school’s abilities concerning knowledge. Please rate the extent to which your staff members engage in the abilities described in each statement.”

The items dealt with acquisition ability related to acquiring external knowledge, such as technology (electronic means) or advanced academic, assimilation—when teachers understand and use this knowledge in their work; transformation—when it changes their work by combining new knowledge
to existing knowledge; and exploitation—when it affects the school process to effectively use this knowledge and create change (for a more detailed explanation, see Table 1).

**Study 1: Scale refinement—Exploratory factor analysis (EFA)**

EFA was conducted to map the construct domain and refine the ACAP measure. This analysis explores the number of factors accounting for covariation between variables when there is not, a priori, sufficient evidence to form a hypothesis about the number of factors underlying the data (Stevens, 1996).

To explore the factor structure, 420 teachers from 80 Arab elementary schools in Israel were randomly sampled from a list of Israeli elementary schools, and asked to respond to the 12 items of the ACAP questionnaire. Data were collected by a research-staff member. Our teacher sample was selected by two-stage sampling. First, schools (as a cluster) were selected randomly from a list compiled by the education system (we also used this method for Study 2). Then, the teachers were randomly selected from within these schools. Mean school size (number of teachers in each school) was 30 (\(SD = 9.10\)).

Among the teachers in this sample, 61% were female, with a mean age of 35 years (\(SD = 6.78\)), and a mean tenure at their schools of 10.43 years (\(SD = 7.49\)); 70% of the teachers had college degrees. All participants were assured that their responses would remain anonymous. EFA of the item matrix was performed to determine which items clustered together and which did not. For this purpose, a principal-axis factor analysis, rotated using Kaiser’s (1958) Varimax criterion, was used to examine the 12-item measure (as shown in Table 2).

The results showed that the 12 items of the ACAP questionnaire consisted of four factors, explaining 61.24% of the variance. As seen in Table 1, there were four distinct clusters of items with moderate to high reliability coefficients (Cronbach’s alpha): (a) assimilation (three items, .875); (b) exploitation (three items, .821); (c) transformation (three items, .832); and (d) acquisition (three items, .710). The reliability coefficient for the questionnaire as a whole (12 items) was .89, indicating high internal consistency. Values thus ranged from .71 to .875, higher than the standard .7 cutoff (Nunnally, 1978), supporting the reliability of the four ACAP dimensions.

**Table 2. Structure matrix for exploratory factor analysis.**

<table>
<thead>
<tr>
<th>Items</th>
<th>Assimilation</th>
<th>Exploitation</th>
<th>Transformation</th>
<th>Acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td>We use the knowledge we have gained while performing our professional duties at the school</td>
<td>.848</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We use the knowledge we have gained to better understand our work</td>
<td>.834</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We use the knowledge we have gained to learn more about our job</td>
<td>.718</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementing the knowledge we have gained contributes to effective usage of school resources</td>
<td></td>
<td>.830</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The knowledge we have gained enables us to develop the school’s capabilities</td>
<td></td>
<td></td>
<td>.806</td>
<td></td>
</tr>
<tr>
<td>We can implement the knowledge we have gained in our work</td>
<td></td>
<td></td>
<td>.658</td>
<td></td>
</tr>
<tr>
<td>The knowledge we have gained contributes to the performance of our daily work</td>
<td></td>
<td></td>
<td></td>
<td>.863</td>
</tr>
<tr>
<td>The knowledge we have gained has made changes in our work as teachers</td>
<td></td>
<td></td>
<td>.658</td>
<td></td>
</tr>
<tr>
<td>The knowledge we have gained is integrated in our daily work</td>
<td></td>
<td></td>
<td></td>
<td>.614</td>
</tr>
<tr>
<td>We use the knowledge we have gained from advanced academic studies</td>
<td></td>
<td></td>
<td></td>
<td>.714</td>
</tr>
<tr>
<td>We use the knowledge we have gained from the internet or any other electronic means</td>
<td></td>
<td></td>
<td></td>
<td>.742</td>
</tr>
<tr>
<td>We use the knowledge we have gained from our previous experience</td>
<td></td>
<td></td>
<td></td>
<td>.580</td>
</tr>
<tr>
<td>Average Variance Extracted (AVE)</td>
<td>.643</td>
<td>.59</td>
<td>.52</td>
<td>.50</td>
</tr>
<tr>
<td>Composite Reliability (CR)</td>
<td>.840</td>
<td>.81</td>
<td>.76</td>
<td>.75</td>
</tr>
</tbody>
</table>

*Note. Extraction method: principal axis factoring. For clarity, only values equal or above .5 are presented. N = 80 schools.*
Construct validity is generally tested by checking both its convergent and discriminant aspects (Bollen, 1989). Convergent validity shows that the assessment relates to what it should theoretically be related to, and therefore whether the scale relates to the items which could be correlated and whether integrating them to obtain a general measurement is appropriate. Discriminant validity is the degree to which two or more measurements designed to measure different theoretical constructs are not correlated (Camisón & Forés, 2010, p. 712).

Following Fornell and Larcker (1981), we next examined the convergent validity by evaluating the average variance extracted (AVE) of every individual latent construct, and assessed the composite reliability (CR). Chin (1998) suggested an AVE cutoff ≥ 0.5 for each latent construct. Table 2 shows that AVE values for each of the latent constructs are higher than this recommended cutoff. Therefore, all four dimensions of ACAP meet the convergent validity criterion. Furthermore, a CR > .6 is recommended (Fornell & Larcker, 1981). CR is a less biased estimate of reliability than Chonbachs alpha (Alarcón & Sánchez, 2015).

According to Fornell and Larcker (1981), discriminant validity is confirmed when the square root of AVE exceeds the correlation among the latent constructs. Table 3 indicates that the constructs fulfill the discriminant validity criterion, with sufficient psychometric properties for ACAP dimensions (Fornell & Larcker, 1981). All of the items have a higher loading on their corresponding construct than the cross loadings on the other constructs in the model. The AVE for each latent factor exceeded the respective squared correlation between factors, thus providing evidence of discriminant validity (Fornell & Larcker, 1981).

Study 2: Scale validation—Confirmatory factor analysis (CFA)

A separate, new random sample was drawn from 153 Arab elementary schools in Israel, which included 1,284 teachers. The schools were urban, suburban, and rural, representing the full socioeconomic range (and the same characteristics as the sample in Study 1), with at least eight randomly selected teachers per school. Mean school size was 31.31 (SD = 9.40).

Among the teachers who participated in this study, 65% were female, the mean age was 37 years (SD = 8.1), and mean tenure at their schools was nine years (SD = 7.4). Sixty-five percent of the teachers had college degrees. All participants were assured that their responses would remain anonymous.

Guided by the results of the exploratory factor analysis, we conducted CFA of the items pertaining to dimensions of potential and realized ACAP to check for construct independence (Table 4). The confirmatory procedure was performed with the structural-equation modeling software, AMOS 20, to test the model derived from the EFA, and model fit for the CFA was evaluated with commonly used goodness-of-fit indices: comparative fit index (CFI) and root mean square error of approximation (RMSEA) (Byrne, 2006; Vandenberg & Lance, 2000), goodness-of-fit index (GFI), the χ²/degrees of freedom ratio (Wheaton, Muthen, Alwin, & Summers, 1977), the Adjusted Goodness of Fit Index (AGFI) (Bentler & Bonett, 1980), and Normed Fit Index (NFI) (Hu & Bentler, 1995). The value-of-fit indices ranges from 0 to 1, and value ≥ .90 is considered acceptable (good fit) (Hoyle, 1995; Hu & Bentler, 1999). For RMSEA, values between 0.06 and 0.08 suggest an acceptable fit, while values ≤ 0.05 indicate a close fit (Browne & Cudeck, 1993; Hu & Bentler, 1999).

Table 3. Fornell–Larcker coefficients for the first sample.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Acquisition</th>
<th>Assimilation</th>
<th>Transformation</th>
<th>Exploitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td>.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assimilation</td>
<td>.44</td>
<td>.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformation</td>
<td>.40</td>
<td>.76</td>
<td>.72</td>
<td></td>
</tr>
<tr>
<td>Exploitation</td>
<td>.49</td>
<td>.59</td>
<td>.64</td>
<td>.76</td>
</tr>
</tbody>
</table>

Note. The correlations (** p <.01) of the latent constructs and the square root of AVE (values in bold face).
To compare the models, we used the differences between indexes, such as the CFI (Cheung & Rensvold, 2002). For the CFI, an absolute value of .01 or smaller indicates invariance. Values between .01 and .02 suggest that some differences may exist between the models, and values over .02 indicate a lack of invariance, implying that the invariance hypothesis should be rejected (Cheung & Rensvold, 2002).

Results indicated that the hypothesis that the four underlying dimensions of ACAP converge into one common factor was unambiguously rejected (Table 4). Our four-factor model also provided a better fit to the data than its plausible rival two-factor model. All of the fit indices of the two-factor model showed worse fit to the data (CFI < .9) than those of the four-factor model (first and second order models). In addition, a CFI difference test showed significantly better fit of the four-factor (first order and second order) model compared to the two-factor model (ΔCFI > .02).

A comparison of the four-factor model (first or second order) to a three-factor model showed a worse fit for the latter. CFI difference test confirmed that the fit of the three-factor model was significantly worse than that of our four-factor model (ΔCFI > .02).

A four-factor model (first order and second order) fit the data moderately well, with fit indices > .9 and RMSEA < .06 (Browne & Cudeck, 1993; Hoyle, 1995), ΔCFI between the two models (first and second order) is 0, which means that they are equivalent in terms of matching data. Item loadings were as proposed and were significant (p < .001).

Corresponding to these results, the second-order four-dimension ACAP model was chosen. Compared to all other estimated models, this model shows the best fit indices (Figure 1) (GFI = .97, RMSEA = .03, χ²/df = 1.94, AGFI = .91, NFI = .95, CFI = .98). Further, MacCallum, Wegener, Uchino, and Fabrigar (1993) indicated that the choice between mathematically equivalent models should be based on their theoretical meaning. In this case, we chose to maintain the second-order four-dimension model (Figure 1), in which the items are loaded with the response factors, and these represent a general latent variable of ACAP, as their theoretical meaning suggested by Zahra and George (2002).

Table 5 presents operational definitions of the factors that form the final ACAP construct for elementary schools, resulting in 12 items which are listed in descending order, according to their strength of loadings on each factor.

Table 6 presents the range of factor loadings, descriptive statistics, alpha coefficients, and inter-item correlations. There are four distinct clusters of items with reliability coefficients (Cronbach’s alpha): alpha > .7. The range of inter-item correlations in the four-factor model of ACAP range between .311 and .674, (as shown in Table 6).

**ACAP and the validity variable**

Finally, the study verifies the criterion validity, i.e., the degree of correspondence between a measure and a criterion variable, and expresses the extent to which the construct behaves as theoretically predicted in relation to other associated constructs (Bollen, 1989, p. 186). The validity can be concurrent or predictive. This study used the former for demonstrations relating a measurement to other criteria that were either assessed or existed simultaneously. One generally accepted means of

<table>
<thead>
<tr>
<th>Model</th>
<th>Content</th>
<th>GFI</th>
<th>RMSEA</th>
<th>χ²/df</th>
<th>AGFI</th>
<th>NFI</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>All items</td>
<td>.84</td>
<td>.13</td>
<td>13.595</td>
<td>.76</td>
<td>.84</td>
<td>.85</td>
</tr>
<tr>
<td>Two</td>
<td>Acquisition, assimilation plus exploitation (first order)</td>
<td>.86</td>
<td>.11</td>
<td>10.31</td>
<td>.77</td>
<td>.83</td>
<td>.87</td>
</tr>
<tr>
<td>Two</td>
<td>(Acquisition, assimilation plus transformation), exploitation (second order)</td>
<td>.73</td>
<td>.17</td>
<td>13.64</td>
<td>.65</td>
<td>.70</td>
<td>.77</td>
</tr>
<tr>
<td>Three</td>
<td>Acquisition, assimilation, exploitation (first order)</td>
<td>.82</td>
<td>.08</td>
<td>5.96</td>
<td>.75</td>
<td>.81</td>
<td>.86</td>
</tr>
<tr>
<td>Three</td>
<td>Acquisition, assimilation, exploitation (second order)</td>
<td>.81</td>
<td>.11</td>
<td>5.96</td>
<td>.74</td>
<td>.80</td>
<td>.85</td>
</tr>
<tr>
<td>Four</td>
<td>Acquisition, assimilation, transformation, exploitation (first order)</td>
<td>.96</td>
<td>.04</td>
<td>1.95</td>
<td>.91</td>
<td>.95</td>
<td>.98</td>
</tr>
<tr>
<td>Four</td>
<td>Acquisition, assimilation, transformation, exploitation (second order)</td>
<td>.97</td>
<td>.03</td>
<td>1.94</td>
<td>.91</td>
<td>.95</td>
<td>.98</td>
</tr>
</tbody>
</table>
checking concurrent validity is to look at its correlation with some objective measurements in the survey that serve as criterion variables for a particular scale indicator (Camisón & Forés, 2010). We chose to check the ACAP measure with teacher’s affective commitment, a work-related construct (Schechter & Qadach, 2016). Affective commitment is more dominant than normative or continuance commitment in explaining staff behavior (Cohen, 2003; Shapira & Rosenblatt, 2009) and in predicting other important work-related concepts (Cohen, 2003), and it is better related to outcomes

![Figure 1. Four-factor model with a second-order ACAP.](image)

### Table 5. Four factors operationally defined (N = 153).

<table>
<thead>
<tr>
<th>Items per Factor</th>
<th>Loading in Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td></td>
</tr>
<tr>
<td>We use the knowledge we have gained from advanced academic studies</td>
<td>.630</td>
</tr>
<tr>
<td>We use the knowledge we have gained from our previous experience</td>
<td>.622</td>
</tr>
<tr>
<td>We use the knowledge we have gained from the internet or any other electronic means</td>
<td>.510</td>
</tr>
<tr>
<td>Assimilation</td>
<td></td>
</tr>
<tr>
<td>We use the knowledge we have gained while performing our professional duties at the school</td>
<td>.836</td>
</tr>
<tr>
<td>We use the knowledge we have gained to learn more about our job</td>
<td>.801</td>
</tr>
<tr>
<td>We use the knowledge we have gained to better understand our work</td>
<td>.776</td>
</tr>
<tr>
<td>Transformation</td>
<td></td>
</tr>
<tr>
<td>The knowledge we have gained has made changes in our work as teachers</td>
<td>.785</td>
</tr>
<tr>
<td>The knowledge we have gained is integrated in our daily work</td>
<td>.725</td>
</tr>
<tr>
<td>The knowledge we have gained contributes to the performance of our daily work</td>
<td>.699</td>
</tr>
<tr>
<td>Exploitation</td>
<td></td>
</tr>
<tr>
<td>We can implement the knowledge we have gained in our work</td>
<td>.799</td>
</tr>
<tr>
<td>The knowledge we have gained enables us to develop the school’s capabilities</td>
<td>.741</td>
</tr>
<tr>
<td>Implementing the knowledge we have gained contributes to effective usage of school resources</td>
<td>.720</td>
</tr>
</tbody>
</table>

Note. Loadings for the four-factor model are all significant (p<.001). Sample size refers to Schools.
Table 6. Range of factor loadings, descriptive statistics, alpha coefficients, and inter-item correlations for the four-factor ACAP model (N = 153).

<table>
<thead>
<tr>
<th>Composite Factors</th>
<th>Range of Factor Loadings</th>
<th>M</th>
<th>SD</th>
<th>Alpha</th>
<th>Range of Inter-Item Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td>.510–.630</td>
<td>3.85</td>
<td>.24</td>
<td>.72</td>
<td>.370–.600</td>
</tr>
<tr>
<td>Assimilation</td>
<td>.776–.836</td>
<td>4.17</td>
<td>.41</td>
<td>.85</td>
<td>.603–.674</td>
</tr>
<tr>
<td>Transformation</td>
<td>.699–.785</td>
<td>4.18</td>
<td>.32</td>
<td>.85</td>
<td>.311–.655</td>
</tr>
<tr>
<td>Exploitation</td>
<td>.720–.799</td>
<td>4.10</td>
<td>.31</td>
<td>.80</td>
<td>.419–.658</td>
</tr>
</tbody>
</table>

Note. Sample size refers to schools (aggregation to the organizational level).

(e.g., Yang, 2012) such as organizational citizen behavior (OCB) (Chen & Francesco, 2003; Yang, 2012), job satisfaction (Lu, Siu, & Lu, 2010), psychological well-being) Panaccio & Vandenberghe, 2009), and students’ achievements (Qadach, Schecter, & Da’as, 2017).

**Teacher’s affective commitment**

Organizational commitment is defined as “the relative strength of an individual’s identification with and involvement in a particular organization” (Mowday, Steers, & Porter, 1979, p. 226). Teachers’ affective commitment refers to teachers’ emotional attachment to, identification with, and involvement in the organization (e.g., “I feel an emotional connection to this school”) (Meyer & Allen, 1997). In the context of educational organizations, Kushman (1992) found that teachers’ affective commitment is directly linked to students’ achievements, and other studies found that it mediates the link between principal leadership and student achievements (Koh, Steers, & Terborg, 1995; Ross & Gray, 2006). Affective commitment is most likely to predict teachers’ engagement, which promotes student learning (Trammell, 2016). Further, Qadach et al. (2017) found that a teachers’ organizational learning mechanisms (e.g., analyzing, storing, retrieving, and putting to use of information, referring to the processes and means by which organizational experiences are stored and coded into the school memory), promoted teachers’ affective commitment, which in turn affected students’ achievement in math and science.

Previous research has found a relationship between ACAP and organizational commitment (e.g., Arnold, Benford, Hampton, & Sutton, 2010; Caporarello & Costa Zaccarelli, 2009). Arnold et al. (2010) found that risk and ACAP were related to organizational commitment and information sharing in business organizations. Other research has found that ACAP completely mediates the relationship between innovativeness and affective commitment (Caporarello & Costa Zaccarelli, 2009).

Thus, we argue that ACAP will be correlated with teacher’s affective commitment (i.e., criterion variable). Teachers who are involved in the school learning process, and who make a comprehensive effort to transform and exploit the assimilated knowledge, and use that knowledge in their daily work and in school processes, will perceive their job as less complicated; they will feel ownership of the organizational knowledge, and they will want to contribute to their school. This will also promote their emotional attachment to the organization and a strong feeling of belonging to the school. Thus,

H1: ACAP will be positively correlated with teacher’s affective commitment.

**Validity using teacher’s affective commitment**

Validity for the ACAP questionnaire was measured using teacher’s affective commitment which is presumed to relate positively to the extent of ACAP. We used 1,284 teachers from 153 Arab elementary schools to examine this relationship (the same sample used for the CFA). Allen and Meyer (1990) developed a questionnaire measuring organizational commitment. We used the
shorter version of this questionnaire for affective commitment (Gade, Tiggle, & Schumm, 2003). Gade et al. (2003) validated this version with a reported alpha = .81. The scale included four items that were rated by teachers along a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree). We found alpha = .94 for this version. An example item was: I feel like “part of the family” in the school. We found average affective commitment to be 5.83 (SD = .61).

We conducted CFA to verify the structure of the measure. All items loaded significantly on an overall dimension (p < .001), and fit indexes were reasonable (CFI = .97, RMSEA = .04; Browne & Cudeck, 1993; Hoyle, 1995).

To examine the relationship between teacher’s affective commitment and the ACAP construct, the collected data reflect a hierarchical structure in which individual responses are nested within organizational units (schools). We conducted a multilevel analysis using the Mplus program (Muthén & Muthén, 1998–2012), with ACAP representing the organizational level, and affective commitment representing the individual level. In this model, the multilevel equation also includes control variables at the individual level: teacher’s tenure in the school, and at the school level: school size (i.e., number of teachers in each school). The variable employee tenure has been shown to be potentially relevant in terms of its impact on affective commitment (e.g., Bogler & Somech, 2004; Yucel & Bektas, 2012), and school size has been shown to affect school processes, such as organizational learning (Berson et al., 2015).

To justify aggregating ACAP as a school-level variable, we tested whether aggregation to the school level was appropriate by using the rWG statistic (James, Demaree, & Walf, 1984) and by calculating the intra-class correlation coefficients (ICC1 and ICC2; Bliese, 2000) (see Table 7 for ACAP measures). An rWG value of .70 or greater has been suggested as a sufficiently “good” level of within-group interrater agreement (James et al., 1984). We found the average rWG to be over 0.80.

ANOVA measures (ICCs) revealed significant F statistics for all scales of ACAP. ICC1 examines within-group variance by answering the following question: “To what extent can variability in the measure be predicted from organization membership?” ICC2 examines between-group variance by answering the following question: “How reliable are the organization means within a sample?” (Bliese & Halverson, 1996).

Bliese (2000) recommended an ICC1 range of 0 to .50. In the current study, values ranged between .20 and .28, within the range proposed by Bliese (see Table 7). Moreover, Koo and Li (2016) suggested that ICC2 values less than 0.5 are indicative of poor reliability, values between 0.5 and 0.75 indicate moderate reliability, values between 0.75 and 0.9 indicate good reliability, and values greater than 0.90 indicate excellent reliability (p. 158). In this study, ICC2 reliability scores fell between .47 and .65 (Table 7), which provides sufficient evidence that these measures differentiate groups in a reliable way (Koo & Li, 2016). The acquisition dimension (ICC2 = .47) is also considered as fairly reliable as suggested by Fleiss (Fleiss, 1986).

Overall, these results provided sufficient statistical justification for aggregating ACAP to the group level (as shown in Table 7) (Bliese, 2000).

Table 8 shows the correlations between ACAP and its four factors, at the organizational level.

The results of the multilevel analysis showed that schools’ ACAP (Figure 1) is positively related to affective commitment (γ = .38; p < .001) (there were no relations between school size and ACAP or between tenure in the school and teacher’s affective commitment), confirming the criterion variable (hypothesis 1).

<table>
<thead>
<tr>
<th>Factor</th>
<th>ICC1</th>
<th>ICC2</th>
<th>rWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td>.23</td>
<td>.47</td>
<td>.80</td>
</tr>
<tr>
<td>Assimilation</td>
<td>.21</td>
<td>.64</td>
<td>.87</td>
</tr>
<tr>
<td>Transformation</td>
<td>.20</td>
<td>.65</td>
<td>.90</td>
</tr>
<tr>
<td>Exploitation</td>
<td>.28</td>
<td>.54</td>
<td>.89</td>
</tr>
</tbody>
</table>
This study advances our understanding of the ACAP construct in an educational context. It highlights the importance of creating a valid, reliable measurement instrument that conceives of the construct as a dynamic capacity. This capacity exists as two subsets—potential and realized ACAPs, which comprise different processes, capacities, and organizational routines, and lead to a competitive advantage (Zahra & George, 2002). Focused on the organizational level of analysis and grounded in the theoretical contribution of Zahra and George (2002) and the terminology of factor analysis, this study proposes four multi-item measurement scales that capture PACAP and RACAP. This distinction also helps with an analysis of the relationships between both components and an explanation of why certain organizations are more efficient than others in using ACAP to create valuable learning. Linking theoretical and empirical knowledge yielded a 12-item questionnaire with four-factors model (second order model) representing schools’ ACAP: acquisition, assimilation, transformation, and exploitation, confirming the four-factor model for ACAP proposed by Zahra and George (2002).

Jones and Craven (2001) concluded that improving ACAP requires the introduction of new organizational routines which will help codify tacit knowledge. This emphasizes the essential role of teachers and school principals in preparing the appropriate organizational routines and structures to facilitate absorbing organizational knowledge. Such structures include organizational learning mechanisms (OLMs) (Schechter, 2008), which were also found to positively predicting teachers’ affective commitment (Eno-Attarchi, 2011). In this regard, collecting information without the needed mechanisms to analyze and store it in the organizational memory increases the risk of being unable to comprehend the information or use it effectively in decision making (Zahra & George, 2002). The development of the current ACAP questionnaire offers school principals an instrument to assess the extent to which the school promotes the ACAP that enables teachers to gain knowledge more effectively from the external environment.

An important leadership capacity for principals in the 21st century is the ability to initiate collective learning among school members (Qadach et al., 2017; Louis, 2006; Schechter, 2008; Youngs & King, 2002). Organizational learning is a critical component in achieving school effectiveness, and schools that function as learning organizations perform better (e.g., Author2, Colleague & Author1, ; Mulford & Silins, 2011). Berson et al. (2015) suggested that leaders promote a learning climate, which in turn promotes school outcomes as assessed by parents and superintendents. Printy (2008) suggested that leaders act as agenda setters for teacher learning and school improvement, and as knowledge brokers who support teacher learning and provide resources for teachers to actively engage in innovation. In this regard, assessing the ACAP as a means of fostering school learning may serve as a scaffold not only for accountability purposes but, more importantly, for a more holistic approach to collaboratively transforming data to knowledge, and assimilating, transforming, and exploiting it in teachers’ work, thus better clarifying the role of these capabilities for school improvement.

According to Zuckerman et al. (2018), in schools with well-established ACAP, district and school leaders can negotiate demands from outside experts and the needs of the local community to selectively filter disruptive policy through their systems. In so doing, they assimilate only what is useful for their local context and transform existing knowledge on instruction and curriculum to meet

### Table 8. Correlations between ACAP’s variables.

<table>
<thead>
<tr>
<th></th>
<th>Acquisition</th>
<th>Assimilation</th>
<th>Transformation</th>
<th>Exploitation</th>
<th>ACAP Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td>.69**</td>
<td>.62**</td>
<td>.7**</td>
<td>.83**</td>
<td>.83**</td>
</tr>
<tr>
<td>Assimilation</td>
<td>.76**</td>
<td>.74**</td>
<td>.91**</td>
<td>.88**</td>
<td>.88**</td>
</tr>
<tr>
<td>Transformation</td>
<td>.64**</td>
<td>.59**</td>
<td>.90**</td>
<td>.91**</td>
<td>.90**</td>
</tr>
<tr>
<td>Exploitation</td>
<td>.88**</td>
<td>.87**</td>
<td>.89**</td>
<td>.90**</td>
<td>.89**</td>
</tr>
</tbody>
</table>

Note. N = 153 schools (organizational level); **p < .01 (two tailed).
demands without abandoning locally developed practices. Thus, ACAP allows schools to resist what the external parties are dictating to them. ACAP also allows them to maintain what they identify as the strengths of their own curriculum and instructional programs (Zuckerman et al., 2018).

The advantage of these measurement instruments is that they are not limited to technological knowledge; consequently, they enable examining the processes of acquisition and assimilation (PACAP) and transformation and exploitation (RACAP) of other types of external knowledge, leading to better learning at the organizational level. Especially in the educational system, teachers should take courses every year (i.e., professional development, continuing academic degree) to acquire different knowledge, such as pedagogical content knowledge (Hill, Rowan, & Ball, 2005); they can then transform and exploit this knowledge for school processes in order to improve innovation, flexibility, and performance, and create something new based on the transformed knowledge (Lane et al., 2006), for example, of their teaching strategies in classroom. Zuckerman et al. (2018) argued that acquiring external knowledge focusing on curriculum revision and instructional improvement provides teachers with ongoing opportunities to assimilate and translate new information into existing local knowledge about students and the community, toward coherence and alignment of instructional systems. Thus, they can more readily absorb disruptive policy innovations, and develop a resilience that allows schools to use what is relevant, and discard what is not, by incorporating into their systems policies that prevent their being whipsawed by the disruptive innovations.

Accordingly, schools with high levels of ACAP are expected to assimilate educational reforms more effectively, and should utilize high levels of school learning processes, such as OLMs, to gain added value from external and internal knowledge, in order to retain their competitive advantage. Furthermore, a high ACAP depicts the school’s high ability to exploit and transform this knowledge—from teachers acquiring this knowledge from external sources, transforming it and exploiting it for their work, and for school processes, to make a change in the school and guaranteeing schools’ high effectiveness.

Furthermore, individuals’ learning is greatest when the new knowledge to be assimilated is related to the individuals’ existing knowledge structure (Roberts et al., 2012). For example, the knowledge that teachers acquire from a particular website or technology can be very relevant to their work. The more knowledge they assimilate and exploit, the greater the quality of their teaching and the more powerful their pedagogy for facilitating student learning (Cuban, Kirpatrick, & Peck, 2001; Ertmer & Ottenbreit-Leftwich, 2010).

Another example relates to project teams operating with their different stakeholders (parents, superintendent, etc.); by sharing information, they tend to enhance their knowledge base and capabilities, and transform and exploit this knowledge for school processes and structure.

On the other hand, low ACAP may be considered acquisition and assimilation without transformation or exploitation for the school process. Schools that do not engage in the transformation and exploitation of learning do not enable staff at any level to learn collaboratively or continuously, or to share this knowledge, or to put this learning to use in response to social needs and the demands of their environment. Thus, low ACAP represents the gap between PACAP and RACAP, in which teachers cannot exploit their capacity in the school process and promote the school.

The present findings indicate external validation for the ACAP questionnaire (with teacher’s affective commitment). This finding presents a theoretical innovation, as no previous studies tested the correlation between ACAP and teachers’ affective commitment. It is important to stress that because ACAP predicts teacher’s affective commitment, it is important to promote the latter. It has been found that affective commitment promotes student achievement (Qadach et al., 2017). Thus, it is reasonable to assume that leaders who promote the implementation of ACAP processes more extensively in their schools may foster stronger feelings of appreciation among teachers, which may enhance emotional attachment over a sense of obligation. This may encourage teachers to invest more time and effort in formal and informal activities to achieve the school’s goals.
Despite the theoretical and practical implications, the present study is not limitation-free. The instrument was validated for the Israeli educational system. This tool should be examined in other populations and samples (e.g., secondary schools) to replicate and further refine its factor structure. Significant differences may be associated with school context, such as how much principals encourage teachers to acquire knowledge, the schools’ need for specific external knowledge, or how strongly teachers acquire external knowledge and what type of knowledge it is. Thus, administering this measurement tool in different school settings, cultures, and countries would be an important step in extending the validity of the factorial model.

Moreover, the present study used self-report questionnaires for the teachers. Self-report study instruments may be influenced by socially desirable responses, endangering the “trueness” of the study findings. Further research should complement these perceptions with more objective measures, such as open interviews, in order to evaluate actual experiences of external and internal knowledge implementation of school ACAP.

This study examined the concurrent criterion-related validity through teacher’s affective commitment. According to previous studies, ACAP is further expected to predict organizational effectiveness and performance. This study did not examine ACAP and other school objective variables, such as the objective criterion of student achievement. Future research should examine ACAP with other objective measures to strengthen the criterion validity.

It would also be interesting to explore the association between different types of knowledge and the two dimensions of ACAP. Becker and Peters (2000) argued that organizations need higher ACAP for scientific knowledge than for other types of knowledge. Roberts et al. (2012) recommend that researchers should attempt to measure absorptive capacity with respect to specific knowledge domains. Schools also need to acquire and assimilate different types of pedagogical knowledge. Therefore, knowledge types and the influence of leaders on the promotion of all types of information in the organization should be tested. For example, future research might examine which school climate and principal leadership are preferred to promote organizational ACAP for pedagogical innovations.

In conclusion, the present study offers intriguing insights for both researchers and practitioners, and provides new insights into developing important sources of sustainable competitive advantage.

Disclosure statement

No potential conflict of interest was reported by the authors.

References


