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Why stories matter: Exploring learner engagement and metacognition through narratives of the L2 learning experience

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ABSTRACT

In this study, we set out to investigate how autobiographical narratives of learners' L2 learning experience are linked to aspects of language learning cognition and behavior. We conducted a Language Learning Story Interview with 41 college learners of foreign languages (Arabic, Mandarin, Spanish). This interview protocol was designed to elicit self-defining scenes from students' language learning experience. Participants then self-reported detailed aspects of their L2 learning engagement and metacognitive capacity—two state-level characteristic adaptations. Using both frequentist and Bayesian analyses for added transparency, we examined the associations across these types of data in order to explore connections between these two levels of language learner psychology. Our analyses provide initial evidence that the emotional, motivational, and cognitive aspects of learners' episodic narratives are associated with important characteristic adaptations to the learning environment. These data also suggest that a narrative mode of inquiry which places a premium on the interpretive value of individual meaning can complement more conventional designs for language learner cognition and engagement.

1. Introduction

For more than a century, educational research has acknowledged that an individual's prior experience with learning shapes their current attitudes to learning and directly impacts their engagement with continued opportunities for learning (Nolen, Horn, & Ward, 2015; Reschly & Christenson, 2012). Learners' histories are part of their present, and previous encounters with learning feed into individuals' ongoing engagement, effort, and deliberate involvement in classroom settings (e.g., Finn & Zimmer, 2012; Sawyer, 2014). Similarly, research in language learner psychology embraces the idea that individuals' ongoing language learning experiences filter into and inform their current responses and perceptions toward language learning opportunities. This notion of the L2 learning experience originated in Gardner's (1985, 2010) socio-educational model under the rubric of *attitudes toward the L2 learning situation or course*. In its various incarnations (e.g., Dörnyei, 2009b; Noels, 2001; Ushioda, 2001), positive prior experiences with language learning are thought to result in increased involvement and greater language gains for learners (Masgoret & Gardner, 2003). However, despite the intuitive

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nature of this notion and its framing as a central factor in the field, important questions remain regarding whether and how the learning situation and learning experience shape learners' engagement, investment of effort, and active participation—essential components for actually learning in L2 instructional settings.

In this study, we set out to bridge this gap by investigating the associations between individuals' learning experience and their adaptive metacognitive and meta-motivational capacities. Through a sequential exploratory mixed-method design we examine how their L2 learning experience shapes learners' effort, persistence, and engagement with language learning opportunities. We adopt a life-narrative perspective to study these individuals' learning experiences, a framework well-established in various subdomains of psychology (McAdams & Pals, 2006; McLean et al., 2019). Because of its novelty in our field, we combine the life-narrative perspective with a more conventional mode of researching learners' L2 learning engagement and metacognitive capacity. A narrative mode of inquiry draws on in-depth and highly personal life-story data from each learner, while a more widely-accepted way of studying language learner cognition and engagement relies on quantitative scoring and statistical testing. By integrating a qualitative (narrative) and quantitative approach in a pragmatic mixed methods approach (Teddlie & Tashakkori, 2009), our objective was to examine the commonalities across these types of data and investigate whether the emotional, motivational, and cognitive specifications of learners' narratives can be associated with important characteristic adaptations to the learning environment.

1.1. Learner engagement

The amount and quality of learners' engagement is, in part, a by-product of the learning environment and of learners' past learning experiences (Järvelä & Renninger, 2014). Learner engagement, some suggest (Csizér & Kálmán, 2019), crystalizes as the residue of the learner's involvement "shaped and determined by attributions stemming from past L2 learning and L2 use experiences that continually evolve after the actual language learning and language use has taken place" (p. 16). The L2 learning experience has been reported as an important predictor of learners' involvement (e.g., Al-Hoorie, 2018), and very recent work indicates that it captures key details about the quality of students' present engagement in the learning process (Hiver & Al-Hoorie, 2020; Papi & Hiver, 2020). Engagement can, therefore, help to understand *whether*, *how*, and *why* learners exhibit meaningful involvement in the opportunities for language learning and language use they are presented with (Dörnyei, 2019).

While differing in approach, scholars agree on one definitional aspect: engagement refers to action (Lawson & Lawson, 2013). Across its various dimensions (i.e., language- or task-specific, cognitive, behavioral, emotional, relational, etc.) this energy in action results in proactive student involvement in the learning process, operating as a prerequisite for any meaningful learning or instructional success (e.g., Oga-Baldwin, 2019; Philp & Duchesne, 2016). Studies examining how L2 learners engage with learning opportunities show that engaged students are those who actively devote effort and attention to L2 learning (Lambert, Philp, & Nakamura, 2017), persist (Henry & Thorsen, 2018), and self-regulate their behavior toward goals (Phung, 2017). Engagement is also linked to the objectives and content of particular learning tasks and contexts (Baralt, Gurzynski-Weiss, & Kim, 2016; Svalberg, 2009, 2017). One's engagement provides an indication of the mental energy or psychological resources directed toward such tasks, and the emotions and behaviors that this involvement entails (Fredericks, Filsecker, & Lawson, 2016).

Language learners' engagement highlights interdependences between the many cognitive, affective, and behavioral factors at the individual level as well as between individuals and their environment (Hiver, Mercer, & Al-Hoorie, 2020; Hiver & Papi, 2019). The nature of engagement as a "meta-construct" combining observable behaviors, internal cognitions, emotions, and sociocultural interactions (Fredricks, Filsecker, & Lawson, 2016) also makes it appealing to many scholars. In addition, the appreciation that who learners *were* can inform who they *are* and who they *will be* coincides with recent calls to recalibrate the study of the psychology of the language learner to reflect the situated and dynamic reality of learners in contexts of L2 learning (Dörnyei, 2008; 2009a).

1.2. Learner metacognition

Metacognition, too, is fundamental to learning, and the explanatory potential of metacognition has captured the attention of researchers across a spectrum of human development and learning issues (Efklides & Misailidi, 2010). Metacognition, broadly defined as "thinking about thinking, and regulating that thinking" (Flavell, 1979; Wenden, 1998), underlies all intelligent human behavior. The lively debate around how individuals develop and exercise this capacity has recently become more prominent in studying the real-time, complex cognitive demands of language learning (see e.g., Haukås, Bjørke, & Dypedahl, 2018). Metacognition is positioned as superordinate thinking that enables optimal behavior and functioning in task-specific domains (e.g., in language learning, in language use). Consequently, the primary objective of understanding language learner metacognition is to probe the qualitative differences in this capacity that enable some individuals to function and learn more successfully.

An extensive body of work indicates that metacognition offers at least a partial explanation for differential levels of skill development and subsequent performance, and predicts adaptive thought and action (Beran, Brandl, Peran, & Proust, 2012). A common theme running through this work is the proactive and deliberate nature of human activity, particularly in the domain of learning (Hacker, Dunlosky, & Graesser, 2009). Successful individuals take charge of their own thought and actions thereby developing self-awareness, self-determination, and self-direction. In the field of language learning this notion of

proactive agency and intentionality is equally prominent particularly given the complex dynamic nature of instructional contexts (Larsen-Freeman, 2019).

In instructional settings, metacognition has been studied explicitly in relation to general problem solving, reasoning, communication, and attention, and it extends even further to perception, motivation, emotion, and arousal (Dunlosky & Metcalfe, 2008). Some key metacognitive capacities in learning contexts include the ability to tolerate change, problem-solve flexibly, and transition from one aspect of classroom L2 learning to another (i.e., cognitive adaptability); the ability to exercise control over thoughts and impulsiveness, and intentionally regulate emotional responses to L2 classroom events (i.e., emotional/inhibitory control); the ability to anticipate and plan for future classroom learning events, and to set appropriate goals in order to deal with L2 learning demands (i.e., anticipatory planning); and the strategic ability to gauge relative learning success in the L2 classroom, and to identify and correct mistakes while on task (i.e., task-monitoring).

Various dimensions of engagement and metacognition are positively associated (i.e., ranging from $d = 0.48$ to $d = 0.67$) with learning outcomes (Hattie, 2009). Underlying these outcomes is an understanding that the way individuals forge connections to affordances in the learning environment shapes how their proactive thought (metacognition) and action (engagement) develops over time (Lawson & Lawson, 2013; Reschly & Christenson, 2012). As our brief review indicates, the idea that these capacities are related to learning opportunities warrants further empirical work (Dörnyei, 2019). In order to extend these contributions and make links to the way "experience" has been studied elsewhere, we turn now to exploring promising advances in the field that may offer new insight into the L2 learning experience, the quality of L2 learners' engagement, and learners' metacognitive capacity.

1.3. A life narrative dimension of the L2 learning experience

Among the many frameworks for studying individuals and the commonalities and uniquenesses in their experiences is the life-narrative model of psychology (e.g., McAdams, 2006; McLean & Pasupathi, 2011). Drawing on Jerome Bruner's work (e.g., 1986, 1987), McAdams and Pals (2006) pioneered a novel way of studying human experience which suggests that people create meaning and purpose in their lives by constructing life stories (McAdams et al., 2004; McAdams & McLean, 2013). People explain who they are, how they came to be, and where they believe their lives are going by formulating, telling, and revising stories to consciously legitimize their personal past and their imagined futures (Bruner, 1990). "Human conduct," McAdams (2018) argues, "seems to obey narrative rules" (p. 364) because who one is and what one does is a deliberate, internalized, and analytical life-story of the self. This story selectively reconstructs the past and anticipates the future, providing an overall sense of coherence and purpose (McAdams et al., 2004). Although it does not discount the performative and discursive functions of narratives that more socially-oriented scholars attend to, this narrative approach to personality differs from a more generic narrative mode of inquiry because it maintains that individuals' accounts of significant life-story episodes express core psychological themes and reveal underlying dynamics of individuality (McAdams, 2018; McAdams et al., 2006).

Studying individual differences from a narrative paradigm now has over a decade of empirical support (McLean et al., 2019). Researchers in the psychology of language learning have recently adopted this framework for studying individuality (Dörnyei & Ryan, 2015), proposing that the narrative mode of thought lends itself to "explain[ing] the dynamic ways in which people attempt to understand events, the meanings they ascribe to various experiences, and the ways by which they organize and structure them" (p. 199). They outline a framework for a new narrative-based representation of the psychology of the language learner that places "an individual's ongoing internal narrative … [of] learning and using a second/foreign language" (p. 202) at the core of this model.

1.4. Connecting stories of experience to state-level characteristic adaptations

Discrete individual differences and life narratives can be thought of as two different levels of the psychology of the language learner (Dörnyei & Ryan, 2015). This distinction between individual differences and life narratives arose out of McAdams and Pals' (2006) proposal for a functional model of individual psychology rather than one that uses a taxonomy (e.g., the Big-Five model). Level 1 refers to dispositional traits (e.g., how curious, conscientious, or cooperative someone is). This level accounts for the general tendencies and stable expectations we may have of individuals across different situations (McAdams & Manczak, 2011). At level 2 are characteristic adaptations (aka. state-level attributes). These are the situated facets of human individuality. Characteristic adaptations relate to more developmental concerns such as effort strivings, goal-orientations, strategic inclinations, and other patterns of engagement (McAdams & Pals, 2006). Level 2 interests most scholars in the psychology of language learning because characteristic adaptations are contextualized in time, place, or social roles—what Cantor (1990) referred to as the *doing* side of individuality. At level 3, by comparison, are integrative life stories (aka. autobiographical memories), internalized and evolving narratives of the self that allow the individual to simultaneously share and construct an understanding of themselves and their position in the world (McAdams, 2001, 2006; McLean et al., 2019).

Little is known in the field about how characteristic adaptations of the individual (Level 2) are entwined with life-narrative themes (Level 3). This is surprising not only because language learning entails important characteristic adaptations to the learning environment and its affordances (Hiver & Larsen-Freeman, 2020), but also because language learners undoubtedly form internal narratives to create meaning and purpose in their learning trajectories (Hiver, Obando, Sang, Tahmouresi, Zhou,

& Zhou, 2019). In order to better understanding these connections, this study adopts a design with the life-narrative dimension as "the main organizational mechanism—or cohesive device" (Dörnyei & Ryan, 2015, p. 202) for the L2 learning experience. Our aim was to examine what particular associations exist between narrative dimensions of learners' L2 learning experience and important characteristic adaptations to the learning environment, namely, L2 learning engagement and metacognitive capacity. A design such as ours investigating how learners' meaningful involvement in the classroom is influenced by previous L2 learning experiences falls within a "context of justification" (McAdams, 2012, p. 17) and employs well-validated coding systems and statistical analyses.

The associations we set out to test link within and across these domains. We hypothesized that:

- The emotional, motivational, and cognitive characteristics of learners' narratives of their L2 learning experience are positively associated with each other.
- Learners who report higher levels of L2 engagement (cognitive, emotional, and behavioral engagement) in their L2 learning will also draw on greater metacognitive capacity.
- The emotional characteristics of learners' narrative of their L2 learning experience are positively associated with learners' reported emotional engagement and emotional control.
- The motivational characteristics of learners' narrative accounts are significantly associated with both their cognitive and behavioral engagement, as well as their metacognitive capacity for task-monitoring, adaptability, and anticipatory planning.
- Cognitive elaboration of learners' narrative scenes is positively associated with the cognitive and behavioral dimensions of L2 engagement and with learners' capacity for autobiographical sensemaking.
- Autobiographical sensemaking capacity is positively linked to the motivational characteristics of learners' narrative scenes.

This study adopts a mixed-methods research design common in life narrative psychology. However, using both qualitative and quantitative data collection methods in a single study is not sufficient on its own to qualify a study as mixed methods. It is the integration of the two strands of data that defines mixed methods research and highlights its value (Teddlie & Tashakkori, 2009). Our study begins with a primary qualitative phase and follows this with a quantitative phase to integrate findings across the sources of data and extend the initial qualitative exploratory findings. By adopting a sequential exploratory mixed-methods design in which the qualitative and quantitative aspects are complementary rather than competitive we intended to draw on the objective rigor of a quantitative approach and the contextual, interrelational exploration offered by a qualitative approach (Creswell & Plano Clark, 2017).

2. Method

2.1. Participants

Using typical sampling, we collected data from 41 college-level L2 learners. This type of sampling elicits data from typical cases that can reveal key aspects of an issue or provide a "weight of evidence" that is particularly important to understanding the phenomena of interest (Patton, 2007, p. 2), especially in exploratory studies. Through our contacts, we approached a large cohort of language learners at a public university in the U.S. and solicited volunteer participants. Participants who chose to respond (female = 26; male = 15) were language learners voluntarily enrolled in two years of credit-bearing modern foreign languages (Arabic, Mandarin Chinese, Spanish) at the college level. Respondents (all L1 English users) were non-language majors aged between 18 and 24, in their first or second year of college, and had participated in between 6 and 12 years of non-compulsory language learning. We deliberately sampled these learners from typical instructed L2 settings to ensure adequate learning experience. The dimensions described above were those that made this a heterogeneous sample.

3. Materials

3.1. The LLSI

Autobiographical episodes and scenes are useful for revealing psychological themes from individuals' experiences (Adler, Lodi-Smith, Phillipe, & Houle, 2016). To collect this narrative data, we administered a Language Learning Story Interview (LLSI) (McAdams, 2007). This data elicitation protocol asks individuals to classify their language learning story into chapters—giving each a title—and then to focus on particular scenes that stood out from their story (e.g., high points, low points, turning points, challenging points). Extending this narrative into the future, we also asked respondents to imagine the next chapters in their language learning story in a similar format. Finally, we asked each participant to reflect on any connections, essential ideas, or central themes that ran through their language learning story. This way, these self-defining memories and prototypical scenes included both a reconstruction of the past and anticipation of the future.

4. The questionnaire

We administered a self-report questionnaire to elicit further data related to learners' metacognitive capacity and engagement with language learning (see Table 1). Six-point Likert scales were adapted from established measurements in the educational literature (see Supplementary Material). These included variables within the domains of *engagement* and *metacognitive capacity*, chosen due to their importance for ongoing success in L2 instructed settings. We also added the construct of *narrative emplotment*, which represents an autobiographical sensemaking capacity. Table 1 summarizes these variables and multiple measures of reliability.

4.1. Data collection

Following institutional approval, data were collected using the two main instruments described above. All prospective participants, who had provided their email addresses to the research team, were contacted in advance and briefly informed about the interview protocol. Participation was voluntary. All interviews were conducted face-to-face in English (participants' L1) and recorded with the signed consent of participants. A non-directive style of interviewing was used allowing respondents to control the pace and content of their interview. Each session lasted between 50 and 90 min. Finally, we contacted participants in the month following their interview and asked them to complete the self-report questionnaire and return it at the end of a two-week period. These methods of data collection—particularly the language learning story interviews—were chosen to explore, without prejudice, the specific learning experiences of these learners. Our position as multilinguals and language practitioners ourselves not only shaped our inclusive approach to data collection, but also influenced our interpretation and understanding of these data sources.

Table 1
Measurement scales used in this study, their reliabilities, and operational definitions.

		k	Adapted from	Operational definition	*H*	α	ω
L2 Engagement	Cognitive Engagement	8	Martin (2009)	Learners' level of attention and investment of effort in classroom L2 learning.	.68	.90	.89
	Emotional Engagement	8	Martin (2009)	Learners' positive emotional reactions to teachers, peers, and L2 classroom activities.	.65	.95	.92
	Behavioral Engagement	8	Martin (2009)	Learners' active participation and involvement in classroom L2 learning.	.55	.87	.86
Metacognitive Capacity	Adaptability	6	Martin, Nejad, Colmar, and Liem (2012)	Learners' ability to tolerate change, problem-solve flexibly, and transition from one aspect of classroom L2 learning to another.	.61	.85	.82
	Emotional Control	8	Gross and John (2003); Tangney, Baumeister, and Boone (2004)	Learners' ability to exercise control over thoughts and impulsiveness and intentionally regulate their emotional responses to L2 classroom events.	.64	.93	.91
	Anticipatory Planning	6	Roth, Isquith, and Gioia (2005)	Learners' ability to anticipate and plan for future classroom learning events, and to set appropriate goals in order to deal with L2 learning demands.	.56	.93	.89
	Task-monitoring	6	Roth et al. (2005)	Learners' strategic ability to identify problem-solving success or failure in the L2 classroom, and to identify and correct mistakes while on task.	.50	.79	.78
Narrative Emplotment		8	Hill, Terrell, Hladkyj, and Nagoshi (2009)	Learners' tendency to assign autobiographical meaning to events by actively incorporating them into one's life story.	.66	.89	.88

Note. Scale homogeneity (H), shown from Mokken scale analysis, was set at a minimum of 0.50. McDonald's omega (ω) is a commonly-used test of reliability for measurement instruments that cannot satisfy assumptions of tau-equivalence.

Table 2
Descriptives for coded autobiographical scenes.

	Range	*M*	*SD*
Emotional Parameters			
Emotional Loading	0–5	3.11	.37
Emotional Intensity	0–5	3.29	.81
Emotional Sequencing[a]	0–2		
Motivational Parameters			
Volition	0–5	2.85	.91
Personal Growth	0–5	2.64	.80
Motivational Impact	0–5	3.35	.88
Cognitive Elaboration			
Narrative Complexity	0–5	2.88	1.06

Note. Total scenes coded = 392.
[a] Emotional Sequencing was scored 0, 1, or 2 to indicate the direction of change: no change, positive change, and negative change respectively.

4.2. Data analysis

4.2.1. Qualitative data

We applied McAdams and colleagues' (2004, 2006) thematic coding scheme (see Supplementary Material) to code all narrative data for emotionality, motivational characteristics, and cognitive elaboration. Two independent coders rated each episode of the participants' language learning experience for (1) emotional tone, sequencing, and intensity; (2) motivational themes of volition and personal growth, as well as the impact of these in the episode; and, (3) narrative complexity and cognitive elaboration. Here, the unit of analysis was the episode or chapter itself, and each was coded for the presence and relative strength of these specific thematic codes. Based on considerations of content and structure, each coder determined (a) whether or not the episode or chapter contained evidence of each of these thematic codes and (b) the strength of this code within the narrative data.

Emotional tone was assessed using McAdams et al.'s (2001) six-point rating of each episode's expression of affect (i.e., 0 = *strong negative valence*, 5 = *strong positive valence*) as well as the intensity of emotional content (i.e., 0 = *few characteristics present*, 5 = *many characteristics present*). Emotional sequencing was scored uniquely from other emotional themes (i.e., 0 = *no emotional change*, 1 = *positive change occurs*, and 2 = *negative change occurs*). Motivational characteristics were assessed using McAdams et al.'s (1996) coding procedure for the presence or absence in each scene of volitional agency and personal growth (i.e., 0 = *low number of instances*, 5 = *high number of instances*) as well as the motivational impact (i.e., 0 = *low impact quotient*, 5 = *high impact quotient*) of these themes in the episodes. Narrative complexity of scenes was assessed using McAdams et al.'s (2006) scoring procedure to rate the cognitive elaboration of personal stories in relation to multiple, differentiated and integrated points of view, contradictory aspects of the self, mixed motivations, and complex emotional experiences (0 = *very low complexity*, 5 = *very high complexity*). All scores were summed and averaged across the 9 or 10 different scenes of each participant following established coding conventions. Descriptive statistics for these measures are reported in Table 2. Once the narrative episodes were coded, Cohen's κ was run to determine the degree of agreement between coders' scores. There was strong agreement between all coders for the narrative episodes coded, $\kappa = 0.821$ (95% CI [0.53, 0.89]), $p < .001$.

4.2.2. Quantitative data

All data analyses were run with JASP 0.11 (JASP Team, 2019). Due to the potential for non-normal distribution of these measures in our modest sample (see Table 3), data were first transformed into ***z***-scores. As this study was exploratory and assumptions of monotonicity were satisfied, we computed non-parametric bivariate correlations (i.e., Spearman rank-order correlation) to determine whether and to what extent our narrative measures of the L2 learning experience were associated with self-reported L2 engagement and metacognitive capacity. For all significant rho values we supplemented these frequentist tests with Bayesian correlation analyses using an informative prior[1] set to 1 as a way of providing supplementary information regarding the strength of association between these variables (Wetzels & Wagenmakers, 2012). This is also in line with calls to adopt Bayesian approaches as a secondary analysis (e.g., Norouzian, de Miranda, & Plonsky, 2018) given that they are better equipped to model data with smaller sample sizes than canonical tests (Dienes & Mclatchie, 2017).

5. Results

Results for the frequentist correlations (Spearman's ρ) were computed for each of 10,000 bootstrapped samples (Table 4). Significance was tested based on the 95% confidence interval. For all significant Spearman's correlations we opted to run

[1] The stretched beta prior width of 1 assigns equal prior probability to all correlation values between −1 and 1.

Table 3
Descriptives for unstandardized scores of self-report measures.

	M	*SD*	Skewness	Kurtosis
L2 Learning Engagement				
Cognitive Engagement	4.21	1.00	-.109	-.409
Emotional Engagement	3.40	1.46	.335	-.839
Behavioral Engagement	3.40	1.01	.986	1.412
Metacognitive Capacity				
Adaptability	5.03	.79	−1.363	.699
Emotional Control	4.86	.80	−1.190	1.559
Anticipatory Planning	5.28	.77	−1.388	1.008
Task Monitoring	4.94	.63	−1.109	.502
Autobiographical Sensemaking				
Narrative Emplotment	4.33	.99	-.705	-.189

Note. $N = 41$. *SE* for skewness = 0.55. *SE* for kurtosis = 1.06.

additional Bayesian correlations using an informative prior. Following best practice in Bayesian testing (i.e., reporting Bayes factors[2] and credible intervals for associations) we also consulted a Bayes factor Robustness Check, and the appropriate Sequential Analysis for each coefficient (Gelman et al., 2013).

5.1. Across narrative dimensions of the L2 learning experience

As can be seen in Table 4, the three main narrative dimensions coded from the L2 learning experience showed some significant links. First the strength of emotional expression (emotional intensity) in participants' narrative scenes was positively associated with the emotional sequence of scenes $r_s = 0.56$, $p = .009$, 95% CI [0.20, 0.82], $BF_{10} = 8.47$. This indicates that when a change in expression of emotions from positive to negative occurs in participants' narratives, there is a corresponding increase in emotional intensity. Separate to this, emotional intensity was positively associated with the motivational themes of volition $r_s = 0.53$, $p < .01$, 95% CI [0.15, 0.80], $BF_{10} = 8.01$ and with personal growth $r_s = 0.67$, $p = .002$, 95% CI [0.35, 0.87], $BF_{10} = 8.77$. As Table 4 shows, the strongest association with emotional intensity was motivational impact $r_s = .71$, $p < .001$, 95% CI [0.43, 0.89], $BF_{10} = 231.40$. This suggests that the greater the emotional intensity the higher the corresponding motivational impact of the motivational themes within their narrative scenes. Somewhat surprisingly, the emotional quality (emotional loading) of scenes was not related with either of these motivational themes or to any other narrative dimensions, and although we expected that language learners with a more positive learning experience would draw on greater volition and more personal growth, and develop more complex narratives, we did not find support for this.

The data showed that all motivational characteristics were strongly and positively associated with each other. Volition and personal growth were significantly correlated $r_s = .73$, $p < .001$, 95% CI [0.45, 0.89], $BF_{10} = 44.19$, as were volition and motivational impact $r_s = .72$, $p < .001$, 95% CI [0.46, 0.90], $BF_{10} = 142.80$, and personal growth and motivational impact $r_s = .68$, $p < .001$, 95% CI [0.57, 0.92], $BF_{10} = 42.92$. These latter two values signify that the higher the participants' scenes were scored for volition and personal growth the more impactful these motivational characteristics were on their narrative scenes. While scores in the bivariate correlation matrix that are atypically high (i.e., $r < 0.7$) can indicate redundancy between variables and weaken subsequent analyses by inflating the size of error terms, we do not attempt to further refine any variables here due to the more exploratory nature of these correlational analyses which set out, primarily, to establish the extent to which such measures could be meaningfully associated. Finally, narrative complexity, a measure of the cognitive elaboration of learners' narrative scenes, was positively associated both with personal growth $r_s = 0.56$, $p < .01$, 95% CI [0.19, 0.82], $BF_{10} = 7.89$ and, more moderately, with volition $r_s = 0.45$, $p = .03$, 95% CI [0.05, 0.77], $BF_{10} = 3.32$ but not with the impact of these motivational themes.

5.2. Across L2 engagement and metacognitive capacity

Within the subdomains of L2 learning engagement, cognitive engagement was positively associated with both emotional engagement $r_s = 0.57$, $p = .008$, 95% CI [0.20, 0.82], $BF_{10} = 9.41$ and behavioral engagement $r_s = 0.51$, $p = .017$, 95% CI [0.13, 0.79], $BF_{10} = 12.35$, while a surprisingly strong link was found between emotional and behavioral engagement $r_s = 0.72$, $p < .001$, 95% CI [0.45, 0.89], $BF_{10} = 255.99$. This indicates that the more positively interested in teachers, peers, and L2 classroom activities learners are (emotional engagement) the higher learners' level of attention and investment of effort in classroom L2 learning will be (cognitive engagement) and the greater learners' level of active participation and involvement in classroom L2 learning (behavioral engagement). Only one dimension of engagement (behavioral engagement) was

[2] Bayes factors can be expressed as support for H0 over H1 (BF_{01}), as support for H1 over H0 (BF_{10}), or on a log scale.

Table 4
Intercorrelations between narrative dimensions and characteristic adaptations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Emotional Loading	–	−0.25	−0.11	0.02	−0.00	0.03	0.05	0.23†	0.26†	0.45*	−0.03	0.03	0.29	−0.08	−0.03
2. Emotional Intensity		–	0.56**	0.53*	0.67**	0.71***	0.27	0.01	0.24	0.48*	0.43*	0.02	−0.15	0.26	−0.17
3. Emotional Sequence			–	−0.06	0.19	0.40	−0.12	0.09	0.07	0.00	−0.02	−0.03	0.00	0.23	0.12
4. Volition				–	0.73***	0.73***	0.45*	0.49*	0.51**	0.10	0.32†	−0.08	−0.01	−0.04	−0.23
5. Personal Growth					–	0.79***	0.56**	0.41*	0.43*	−0.06	0.42*	0.23	−0.15	0.11	−0.31
6. Motivational Impact						–	0.22	0.44*	0.48*	0.13	0.31	−0.01	−0.09	0.08	−0.13
7. Narrative Complexity							–	0.52**	0.04	0.11	0.62**	0.30	0.05	0.48*	−0.29
8. Cognitive Engagement								–	0.51*	0.57**	0.25	0.27	0.20	0.40†	−0.03
9. Behavioral Engagement									–	0.72***	0.38†	0.11	−0.13	0.42*	0.18
10. Emotional Engagement										–	0.21	0.20	0.02	0.39†	0.26
11. Adaptability											–	0.50*	−0.22	0.77***	0.05
12. Emotional Control												–	0.18	0.65**	0.23
13. Anticipatory Planning													–	−0.06	−0.20
14. Task Monitoring														–	0.39†
15. Narrative Emplotment															–

Note. †$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$, Two-tailed.

significantly associated with a metacognitive capacity (task monitoring) $r_s = 0.42$, $p = .04$, 95% CI [0.06, 0.75], $BF_{10} = 2.62$, although Table 4 shows that several others are approaching significance. This link in particular shows that higher participation and involvement in classroom L2 learning coincides with greater awareness on the part of learners of their success and failure in the L2 classroom, and the strategic ability to correct course during their L2 learning.

The metacognitive capacity of adaptability was positively related to emotional control $r_s = 0.50$, $p = .02$, 95% CI [0.10, 0.79], $BF_{10} = 12.62$ and more strongly to task monitoring $r_s = 0.77$, $p < .001$, 95% CI [0.53, 0.91], $BF_{10} = 154.31$, while task monitoring was also significantly associated with emotional control $r_s = 0.65$, $p = .002$, 95% CI [0.33, 0.86], $BF_{10} = 264.10$. The strong links among these three metacognitive capacities make sense, as learners' strategic ability to monitor their performance in the L2 classroom, and to identify and correct mistakes while on task, are contingent on their ability to tolerate change and transition flexibly from one aspect of classroom L2 learning to another while also exercising control over and intentionally regulating their emotional responses to L2 classroom events.

5.3. Between the narrative dimensions and characteristic adaptations

As we hypothesized, our data showed that learners who reported greater emotional engagement also constructed narratives that were judged to include stronger positive emotional loading $r_s = 0.45$, $p = .02$, 95% CI [0.12, 0.69], $BF_{10} = 12.37$ and a higher emotional intensity $r_s = 0.48$, $p = .015$, 95% CI [0.24, 0.61], $BF_{10} = 15.81$. In addition, the emotional intensity of learners' narratives was moderately and positively associated with the metacognitive capacity for adaptability $r_s = .43$, $p = .04$, 95% CI [0.02, 0.75], $BF_{10} = 4.24$. This suggests that learners with greater ability to tolerate change and transition flexibly from one aspect of classroom L2 learning to another also tended to construct stories that were judged by raters as more emotional in expression. Contrary to prediction, however, learners high in emotional control were no more likely to construct more emotionally intense autobiographical scenes or to include more positive emotional expression in their narratives.

Turning to the motivational characteristics of the narratives, our data show that these were related to both the cognitive and behavioral dimensions of L2 engagement, but not to emotional engagement. Learners who reported greater cognitive engagement in L2 learning were also more likely than their counterparts to express themes of volition $r_s = 0.49$, $p = .015$, 95% CI [0.21, 0.68], $BF_{10} = 14.24$, personal growth $r_s = 0.41$, $p = .025$, 95% CI [0.10, 0.83], $BF_{10} = 7.13$, and motivational impact $r_s = .44$, $p = .018$, 95% CI [0.23, 0.70], $BF_{10} = 9.50$ in their narratives. In addition, learners' behavioral engagement in L2 learning was strongly and positively associated with the motivational characteristics of volition $r_s = 0.51$, $p < .01$, 95% CI [0.31, 0.94], $BF_{10} = 35.22$, personal growth $r_s = 0.43$, $p = .03$, 95% CI [0.12, 0.76], $BF_{10} = 7.09$, and motivational impact $r_s = .48$, $p = .02$, 95% CI [0.28, 0.85], $BF_{10} = 11.18$ in their narratives. This indicates that the motivational characteristics of learners' narratives are closely associated with the effort and attention learners devote to L2 learning as well as their active participation and involvement in the learning process. With regard to the metacognitive capacities of learners, only the correlation between personal growth and adaptability was significant (moderately so) $r_s = 0.42$, $p = .04$, 95% CI [0.07, 0.75], $BF_{10} = 2.80$, suggesting that learners with a stronger capacity to tolerate change and problem-solve flexibly in the L2 classroom tended to emphasize themes of promoting positive development of the self in their narrative scenes.

Our data analyses did not reveal any significant associations between narrative emplotment and any of the narrative dimensions. This suggests that learners with a greater tendency to assign autobiographical meaning to events by actively incorporating them into a life story were no more likely to construct narratives that feature a more intense or more positive emotional tone, no more likely to tell stories with themes of volition to assert the self or power to expand and control the self, and no more likely to construct complex autobiographical scenes. Of the three dimensions of L2 engagement, only cognitive

engagement was significantly associated with narrative complexity $r_s = .52$, $p < .01$, 95% CI [0.24, 0.72], $BF_{10} = 19.79$, and this was expected. Our analyses also indicated that narrative complexity strongly predicted adaptability $r_s = .62$, $p = .002$, 95% CI [0.28, 0.85], $BF_{10} = 22.49$ and was positively associated with task-monitoring $r_s = 0.48$, $p = .02$, 95% CI [0.09, 0.78], $BF_{10} = 4.82$. Although not predicted, these associations indicate that students who reported a higher strategic awareness of relative success while on task in the L2 classroom, and those better able to tolerate change and problem-solve flexibly in the L2 classroom, were more likely than others to construct cognitively elaborate narrative accounts incorporating multiple points of view, interwoven motivations, contradictory emotional stances, and differentiated aspects of self.

6. Discussion & conclusion

In designing this study, our purpose was to examine if comparisons of autobiographical accounts from language learners with their engagement and metacognitive capacities would reveal the intriguing ways these are related to each other. Below, we revisit our findings in order to discuss the levels of support the data returned for these various results. We then discuss why stories about learners' L2 learning experiences really do matter.

Individuals' learning experiences, and their first-hand accounts of such episodes, feature an underlying emotional quality or tone (Pekrun & Linnenbrink-Garcia, 2012). This emotional tone loads positively as well as negatively, and emotional complexity may even be desirable as it is associated with adaptability and with easier, more efficient access to conceptual knowledge (Lindquist & Barrett, 2008). In our analyses, we expected that participants whose autobiographical memories of L2 learning showed evidence of more intense emotion and more positive emotion and emotional sequences would also be more emotionally engaged in language learning. We further anticipated that these learners would report more active control over their thoughts and impulsiveness, and would more successfully regulate and moderate their emotional responses to the events and social interactions in language classrooms. Our data showed support for positive associations between emotional engagement and the metrics of emotional quality and intensity, but not between these and emotional control. This suggests that, at least within our dataset, the tendency to construct narratives of autobiographical scenes that were more emotionally intense or that included more positive emotional expression was only predictive of higher emotional engagement in classroom L2 learning and not of greater capacity to exercise control over and intentionally regulate one's emotional responses to L2 classroom events. Another positive association between emotional specifications of narratives and learners' characteristic adaptations was found for emotional intensity and the metacognitive capacity of adaptability. This indicates that learners whose stories of their learning experience were judged by raters as more intensely emotional also reported a greater ability to tolerate change and transition flexibly from one aspect of classroom L2 learning to another—the emotional valence did not matter as much for adaptability.

Turning to the motivational characteristics of life-narrative accounts (i.e., volition and personal growth), these refer to individuals' desire to assert, expand, and control the self, gain greater personal autonomy and mastery, and promote positive development of the self. Such notions ground narrative accounts of the L2 learning experience in the past, provide meaning for the present, and orient learners to the future. These themes have also been emphasized in previous research for their positive association with achievement and responsibility (e.g., McAdams et al., 2006), and their connection to the kinds of intentions and behaviors that can lead to long term language learning success (Hiver et al., 2019). We, therefore, expected a reasonably strong positive association between the motivational characteristics of volition and personal growth with all three dimensions of L2 engagement, as well as with several metacognitive capacities: anticipatory planning, task monitoring, and adaptability. In our results we found that learners who expressed themes of volition, personal growth, or motivational impact in their narratives reported stronger cognitive or behavioral engagement in L2 learning; however, our data showed no associations between the emotional dimension of L2 engagement and these motivational characteristics of learners' narratives. We found additional support for a positive association between learners' metacognitive capacity for adaptability and the motivational theme of personal growth. Contrary to what we anticipated, neither task monitoring nor anticipatory planning were linked to these motivational characteristics of learners' autobiographical scenes. This finding, that only those learners with a stronger capacity to tolerate change and problem-solve flexibly in the L2 classroom tended to emphasize themes of positive development of the self in their narrative scenes, suggests that although the motivational aspects of learners' autobiographical memories of L2 learning can have a sustained influence on their characteristic adaptations in L2 instructional settings, this impact is only borne out in certain ways.

Finally, narrative complexity within life-narrative accounts is a measure of the cognitive elaborateness of the content and structure of key autobiographical scenes. This has been shown to be associated with more explicit attempts to understand important life events and ascribe meaning to them (McAdams et al., 2004). Narrative complexity has also been linked to learners deriving greater meaning, more coherent interpretations, sharper insights, and more valuable lessons from their experiences that can in turn loop back into their ongoing development (Hiver et al., 2019). We anticipated strong positive associations between narrative complexity and the measured metacognitive capacities, learners' autobiographical sense-making capacity, and with both cognitive and behavioral L2 learning engagement. Our data returned support primarily for associations between narrative complexity and the metacognitive capacities of adaptability and task-monitoring. These associations suggest that students who were able to construct cognitively elaborate narrative accounts incorporating multiple points of view, interwoven motivations, contradictory emotional stances, and differentiated aspects of self also reported a higher strategic awareness of relative success while on-task in the L2 classroom, and were better able to tolerate change and problem-solve flexibly in the L2 classroom. We found the expected associations between narrative complexity and

dimensions of L2 engagement only materialized between narrative complexity and cognitive engagement. Results did not reveal any meaningful associations between narrative emplotment and the narrative dimensions. This indicates that the capacity for actively incorporating events into one's ongoing experience and assigning them autobiographical meaning was not predictive of narratives that were more complex in content and structure, nor of those that featured a more intense or more positive emotional tone, nor those that included themes of volition to assert, control or expand the self.

6.1. Pedagogical implications

Involving L2 learners in compelling tasks, interactions, and opportunities for development during their experiences are key parts of creating the conditions necessary for learning to occur (Park & Hiver, 2017; Yun, Hiver, & Al-Hoorie, 2018). These are also key to building L2 classroom environments that are thoughtful, demanding, and supportive of learners' development. The L2 learning experience can have a strong relevance for learners and their development provided that the learning experience is designed explicitly to engage language learners and build greater metacognitive capacities.

One implication that our study suggests is the need to focus on the necessary conditions for engagement in individuals' language learning experience (Hiver et al., 2020). This may involve identifying, within complex learning settings, what makes language learning and use engaging for students both inside and outside of classroom settings, what conditions are part of engaging instructional contexts and language learning tasks, and how engaging experiences differ across groups of diverse learners with varied levels and learning objectives. Engagement is thought of as the key mechanism for greater involvement and higher quality participation in opportunities for language learning. As a result, amplifying the necessary conditions for engagement to thrive can help practitioners in the field attend to these multiple dimensions of students' participation. Furthermore, identifying disengaging learning environments and experiences can shed light on the policies, practices, and contextual influences that have little "holding" power or that provide a disincentive for active learner involvement and meaningful participation (Christenson, Reschly, & Wylie, 2012, p. 816). This work could be thought of as establishing a person-environment fit.

Engagement is a kind of "'hands-on' and 'heads-on'" energy for learning (Skinner, Kindermann, Connell, & Wellborn, 2009) characterized by enthusiasm, willingness, effortful exertion, interest, and concentrated attention directed towards understanding, learning, or mastering the knowledge and skills necessary to be a competent language user. Thus, we would suggest another implication would be to focus on the development of engagement over time. Student engagement is not static or immutable—it can change (Mercer, 2019). How it is dynamic and under what conditions and experiences are open empirical questions. Often student engagement is conceptualized as a desired outcome, but it is also possible to take more explicit temporal considerations into account, for example, by considering the role of teachers, peers, and learning tasks on engagement over time, and examining how classroom learning opportunities, assessments, and extramural interests and experiences influence learners' engagement.

Finally, we would suggest a focus within language learning experiences on re-engaging disengaged and disaffected students. Research shows that engaged learners reach higher levels of learning achievement and benefit from many desirable "side-effects" such as deeper interest, greater motivation, stronger self-efficacy, and persistence (Reschly & Christenson, 2012). By comparison, developmental problems will occur if students are disengaged from learning. The effects of chronic disengagement in learning activities extend beyond passivity and into wasted attention and effort for learning, and poor persistence and commitment to learning more broadly (Fredericks et al., 2016). Genuinely engaging in an activity often generates further engagement, and this "Matthew effect" (i.e., positive feedback loop) of engagement highlights the importance of targeted interventions that can help disengaged learners recapture their energy for action and rediscover meaningful involvement in language learning.

6.2. Research implications

Our study shows that examining the language learning experience using these diverse sources of data can help stakeholders make sense of how learners' current thought and action is shaped by initial conditions and contextual affordances. Specific episodes of the learning experience shed light on explicitly narrative features of learners' individuality, offering a complementary perspective to the more conventional modes of studying learners' meta-motivational and meta-cognitive characteristics. As Bluck and Alea (2011) propose, individuals call upon stories about their domain-relevant past to serve social, directive, or self-constitutive functions in learning and development through means of autobiographical reasoning. Individuals are proactive in constructing personal meaning through this deliberate process (i.e., autobiographical reasoning), using it to assign causal and thematic coherence from past experience to their ongoing present and to internalize the emotional evaluations that accompany these connections (McLean & Fournier, 2008). The autobiographical reasoning that is most growth-promoting has to do with understanding how one has changed over time and what aspects of past experience apply most to the current self (Hiver et al., 2019).

Our data revealed some associations between measures of learners' engagement and metacognition and the emotional, motivational, and cognitive characteristics of their autobiographical memories. However, the ratings from our first source of data, are not isomorphic with those same learners' engagement and metacognition in classroom settings (cf. McLean et al., 2019). There is little reason to expect perfect symmetry and consistency across these different levels of description (e.g., McAdams, 1995). And yet, the puzzling mismatch between some of our third-person-coded narrative data and learners' self-

ratings of engagement and metacognitive capacity may indicate that self-ratings and objective codes are getting at two different things (Adler et al., 2016; Panattoni & McLean, 2018). Autobiographical memories are told retrospectively but self-ratings of L2 engagement and metacognitive capacity reference the present time. Following others' thinking, we would suggest that learners' self-ratings may represent their current conscious interpretation of their engagement and metacognitive capacity, whereas the coding of retrieved episodic memories may tap into what McAdams (2018) refers to as the "unconsciously motivated aspects" of the self (p. 367). The distinction between self-reports measuring conscious values or attitudinal variables and autobiographical memories accounting for more implicit aspects of spontaneous narrative thought is well-documented in other domains (McClelland, 1980; Schultheiss & Pang, 2007).

Despite these limitations, this study can be seen as part of a new direction the field is moving in, one that approaches the study of language learners' psychology relationally and broadens our understanding of the complexities of individuality in language learning settings (Dörnyei, 2017). The contribution of this study is, therefore, both methodological and substantive: it adopts a novel framework and borrows from established research designs to provide new insight into the empirical connections between individuals' autobiographical memories of language learning experiences and their characteristic adaptations as language learners. Such links have only begun to be documented in the field, and we welcome further work to establish how this framework can inform both the experiences of language learners and the work of language researchers and practitioners.

CRediT authorship contribution statement

Phil Hiver: Conceptualization, Methodology, Formal analysis, Writing - original draft. **Shiyao (Ashlee) Zhou:** Investigation, Writing - original draft, Data curation. **Somayeh Tahmouresi:** Data curation, Investigation, Writing - original draft. **Yuan Sang:** Data curation, Investigation, Writing - original draft. **Mostafa Papi:** Formal analysis, Writing - review & editing.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.system.2020.102260.

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