BEING BETWEEN WORLDS: INDIVIDUAL-SOCIETAL OPENNESS, EXPANSION, AND BECOMING THROUGH MEANINGFUL TECHNOLOGIES

Complete Research

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Abstract

As our society continues to become increasingly connected through technologies, we have also witnessed a concomitant rise in overall value through the resulting openness. Therefore, research has begun to focus on how to further increase the openness of technologies and their respective structures. Some research has already been directed toward this goal, however much of this research ignores the possibly necessary need for individuals to become more open. This study seeks to explore and understand the nature of openness in individuals within a technological context and hence provide a theoretical foundation and direction for future research, as well as mechanisms for increasing openness. First, this paper examines what it means to be open and closed through the lens of personal construct theory, and how personal construct psychologists nudge clients towards an individual-collective horizon that allows for alternative ways of construing (being open). Next, using empirical data, the paper illustrates how this process increases openness in general and can shift attitudes towards more open technologies. Finally, the paper discusses how this process could be put into technology design and semantically connected with other technologies in order to achieve the same result on a societal scale.

Keywords: Becoming, Being, Horizon, Meaningful Technologies, Personal Construct Theory, Semantics.

1 Introduction

Many valuable contributions have been made to the area of openness and IT. While the most prominent examples relate to Open Source Software (e.g. Fitzgerald, 2006), other contributions include making technologies and their environmental context more open to tailorability (Germonprez et al., 2007, 2011), creating governance mechanisms for open platforms (Zogaj and Bretschneider, 2014), exposing organizational barriers to openness (Hjalmarsson et al., 2014), or how organizations can navigate the chaotic nature of open innovation through task-technology-fit (Kruse, 2014). While the motivations of OSS participants and users have received considerable attention (e.g. Hars and Ou, 2001; Lakhani and Wolf, 2005), more fundamental examinations of the individual user and their core motivations are scarce. For example, what if many users are averse to high levels of tailorability; how could we get them to engage with tailorable technologies? If we understood what users are trying to do at a fundamental level, might our view of governance change? What if barriers to openness lie deep within our psyche and therefore what we perceive as barriers are symptoms rather than the root? And, just because a technology fits the task does that necessarily mean that the individual user sees the task as something worth engaging with (or worse, a threat)? This paper aims to engage these questions via individual views and provide explanation via personal construct theory and empirical data.

Personal construct theory (PCT) provides a very rich description of what it means to be open[1] or closed to information, thoughts, other people, and artefacts (Fransella, 2003a; Kelly, 1955). More importantly, it articulates explicit mechanisms with which a person can reconstrue their personal construct system (i.e. their reality) to align with their superordinate constructs (meaning) (ibid). The result of doing so is an alternative construction of their reality that can lead to new ways of being and an acceptance of becoming rather than focusing on lower level, obsolete constructs. This is similar in many ways to Heidegger's horizon (cf. Heidegger, 1962). Furthermore, personal construct psychologists assist their clients by doing this in a way that helps the clients align with social values that are important to them (cf. Hunter et al., 2012) and it is in this way that the personal construct psychologist is always between worlds, translating from higher to lower levels of being and helping the clients transcend the world in which they are 'stuck', but also keeping that world intact as to make the change meaningful.

This same process might be put into technology design, where technologies could employ the same process, leading users to more self-awareness and ultimately being more open to that which open technologies and structures provide. Furthermore, relational ontologies (the technology[2]) and triplestores[3] might be used to semantically connect these newly designed technologies, which would not only allow for more meaningful suggestions for action or tailorability, but could also do so in a way that is sensitive to the individual user so as not to completely invalidate their core constructs (the reason that people are closed (cf. Kelly, 1955)). Indeed, technologies stand to be much better at this process as they have a physical connection to the Internet, do not require sleep, do not get upset, do not care about politics, and will always continue to provide help (cf. Fresco, 2002).

This paper moves towards an explication of how technologies might achieve this and illustrates, through empirical data, how PCT-informed interviews can lead users to shift their views towards open technologies. The data shows that users are quite open to change and evolution (in fact, they demand it); however, they wish to do so within a closed but incrementally (as far as *they* are concerned) expanding system. In this way, the users, just like the personal construct psychologists, are also in a constant state of being between worlds. What we are missing are the technologies that can do the same with respect to social worlds, as this could help the user become more open and increase their connection to theses worlds.

2 Openness and Personal Construct Psychology

Openness has been discussed in the context of IS across a range of foci. Table 1 summarises four key focus areas (technological tailorability/configurability, organization, individual, and technological characteristics).

Focus	Examples	Key mechanisms to openness
Technology tailorability and environmental context.	Germonprez et al. (2007, 2011)	Technological openness (tailorability) is built in at the onset of design.
Organizational openness	Feller et al. (2012)	Openness to working with individuals and/or orgs with no prior relationship is achieved through solver brokerages (intermediaries).
Openness (ambidexterity) of IS managers	Vidgen et al. (2011)	Having both internal and external connectedness equates to open managers.

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[1] As PCT is a phenomenological theory (Butt, 2003), "open" is not defined, but described in this paragraph and elaborated in the forthcoming section. It is, however, in this text, very closely / metaphorically related to "configurability".

[2] For more information and a tutorial, see http://protegewiki.stanford.edu/wiki/Ontology101

[3] Triplestores are subject-predicate-object statements, used in relational databases, such as "chair has colour black".

Organizational openness to the type of technology	Kruse (2014)	If the organization can see how different technologies fit tasks, they will be open to using these technologies.

Table 1. Sample IS literature engaging with openness.

While each of these perspectives have contributed to their respective domains, there may be much more that we can learn by diving deeper into various idiosyncrasies, especially since none of these mechanisms work without the unique individuals behind them. Consider openness and tailorability. A problem with focusing only on increasing tailorability, for example, is that the number of options can be overwhelming and/or time consuming for many people. However, Germonprez et al. (2007) state that:

> "people adapt to technology no matter how difficult it is (i.e. the violin, programming languages) in order to achieve the desired ends (music, functional information system)… designers must understand that users are capable of collecting and aggregating appropriate technology tools to accomplish interrelated tasks at hand, no matter how hard the learning process might be" (p. 363).

While some users do this, others obviously do not. One need only observe the mass non-appropriation of open technologies, such as the Linux desktop operating system, which can in fact meet all of the tailorability characteristics put forth by Germonprez et al. (2007) theory of tailorable technology design and there is rarely a task for which there is no software program. However, since the technology acceptance model's (TAM) ease constructs may not do very well either due to increasing choice and personal power (Simpson, 2014a), we are left at this intersection of importance or meaning to the individual. Certainly a person will adapt to a violin (or become a solver, or establish relationships, or follow organizational leads) if doing so is seen by the *individual* as an important step in their becoming. However, if it is not seen as important (and they have a choice) they will not adapt, they will not establish relationships, and they will not self-identify (cf. ibid). One might then argue that it is up to the individual to work out these steps and engage appropriately, but as any personal construct psychologist knows this is the most prominent obstacle with people. This path to the preferred self is almost never clear and is littered with contradictions (Fransella, 2003a; Kelly, 1955); therefore, personal construct psychology (PCP) has many examples of this.

Personal construct psychologists work with clients to uncover these contradictions and thereby provide clients with *meaningful* change. Meaningful change can only occur when the client is *aware* of a certain contradiction that lies between *their* preferred self and how they are construing and actually acting in the world (ibid). From this, the client can, with the help of a personal construct psychologist, set meaningful goals. Before the client is aware of a contradiction in their construing, they are not only unaware of possible meaningful goals but these same goals presented to them before contradiction salience would be fought or ignored, as these goals would seem irrelevant or stand to invalidate the client's identity (ibid).

Consider a well-known PCP archetype, the stutterer. Fransella (2003b, p.114) provides an illustrative example of the above points:

> Q. What are the advantages for you of being a nice personality?
>
> A. People enjoy being with you.
>
> Q. Whereas those who are disinterested in other people?
>
> A. Are not enjoyable to be with.
>
> Q. Why is it important, for you, that people enjoy being with you?
>
> A. They are likely to open up to you—you get to understand them.
>
> Q. Whereas? [hand gesture used to elicit opposite]
>
> A. They remain a closed book.
>
> Q. That is very interesting. I'm just wondering why you like people to open up to you?

> A. Because it shows people are relaxed with you and trust you and respect you.
>
> Q. Whereas, if they remain a closed book?
>
> A. You never get to know them—people rarely open up to stutterers.

The interviewer begins with one the client's identities, "being a nice personality", and then begins laddering (see Cummins, 2003; Fransella, 2003c; Simpson, 2014b) in order to see if any contradictions lie in the client's construing. As shown above, there is a glaring contradiction in construal between being a nice personality and being a stutterer. If the client is indeed being a nice personality, this should lead to people opening up to them. However, being a stutterer means that people do not. The client then sees by their own logic (whether they notice it themselves or the psychologist makes them aware of it) that it is impossible for them to be a nice personality if they are also a stutterer. At this point the psychologist has helped the client become aware of meaningful change, and now the client can begin to work with the psychologist on creating goals to stop stuttering. This change and set of goals would have previously been resisted (Fransella, 2003c), as many stutterers claim that they are supposedly unable to stop and indeed have created identities around being a stutterer since stuttering "is not a symptom but a way of life" (ibid, p. 215). PCP highlights the issue of goal non-salience with respect to the preferred self, the power of self-sabotage, as well as pointing out that this behaviour is prevalent among the larger population even if it takes on different forms (Fransella, 2003a; Kelly, 1955).

On the other hand, clients that provide insight into the problem of too many options are those exhibiting signs of schizophrenia. In PCT and PCP, schizophrenia is seen as the result of serial invalidation, in which one or more singular events (including the person themselves) has so many ways of being construed that the client is unable to tighten their construing enough to function (ibid). While this is obviously an extreme case, it highlights the reason for defending against invalidation as it can be very serious (ibid; Slattery et al., 2013). If the path to the preferred self is not well-understood, most people tend not to engage with things or situations that provide too many options or environments where novelty is extremely high (again, as far as *they* are concerned), as both contain the possibility of invalidation at the superordinate level (Fransella, 2003a; Kelly, 1955).

Therefore, in PCT/PCP an effective strategy for more 'open' people (i.e. people who are able to reconstrue their view of the world and still function) would entail sensitivity to individual core invalidation yet also uncovering contradictions in construing, simultaneously, which leads to an expansion of one's personal construct system (ibid) (doing this repeatedly over time creates a habit). The first step is to conduct a Repertory Grid (RepGrid) interview followed by laddering to core constructs (Jankowicz, 2005; Simpson, 2014b). Doing so in an IS context can provide the researcher with a very detailed picture of the individual's views of specific technologies and people and how this relates to superordinate or core identity constructs (ibid). The process itself can open people up to alternative ways of construing by simply making them aware of their own construct system with respect to a topic and how it aligns or misaligns with their preferred self.

What is also happening in this process is the expansion of the psychologist's construct system. Indeed, each client brings their own view of the world and, as the personal construct psychologist's role requires that they listen, place no value judgement on the client, attempt to push their own thinking onto the client, yet still come to a negotiated understanding of the constructs and topic, the client is also helping the psychologist become aware of their own contradictions (Kelly, 1955). Finally, all of this is socialized to other personal construct psychologists through journal articles and conferences and is used for future meetings with clients (the discipline and everyone involved coevolves). The reader should keep this perspective salient as it will become quite relevant as this paper proceeds.

While these processes can indeed be put into technology design (section 4), the immediate question is does all of this apply to technology and/or to people outside of a psychologist's office? If so, one would expect to see similar patterns in interview data other than in the original context. Personal construct theory's choice corollary states that "a person chooses for himself that alternative in a dichotomized construct through which he anticipates the greater possibility for extension and

definition of his system" (Kelly, 1955, p. 64). Furthermore, the fundamental postulate states "a person's processes are psychologically channelized by the ways in which he anticipates events" (ibid, p. 46). Therefore, if the theory and the preceding points hold one would expect to see the following in any PCT interview dealing with core constructs:

1. A strong desire for growth and expansion with associated 'right' and 'wrong' (dichotomies).
2. An inclination to do so within the confines of some sort of boundary (anticipation).
3. Contradiction around specific paths to the preferred self (goal misalignment).
4. A transcendental shifting of views towards what to do or appropriate in the process (increased personal openness).

Delving into individuals' views, and then comparing them interpersonally, could provide a useful view of the neglected 'other side' that may result in a hermeneutic understanding of the whole that goes beyond what we may normally consider in openness and IT studies.

3 Method and Results

3.1 Data Collection

To explore and frame the previous expectations, a study was conducted using the PCT-informed process of uncovering technoidentities outlined by Simpson (2014b) that employs the use of RepGrid in conjunction with laddering to meaning through core constructs. In total, 22 participants were interviewed. Purposely, the participants' roles, industries, ages, global geographic location (North America, Australia, China, Middle East), and other demographics varied widely to assess generalizability. Approximately half volunteered while the other half were paid (mitigation of participation motivation). Notably, the only high-level demographic that emerged during the recruiting process was that all final participants were users of the technologies that they were discussing rather than managers or developers of said technologies in-use (even if they were managing or developing technologies of their own). The constructs from the 22 RepGrids and ladders were entered into the software Dedoose. Along with the constructs' respective texts, the data was hermeneutically categorized and abstracted using Jankowicz (2005) and Klein and Myers (1999) as guides.

The triadic sort method (Jankowicz, 2005) was employed and half of the elements compared and contrasted during the interview were technologies while the other half were people. Table 2 provides the elements that were compared and contrasted with respect to the participants' future career goals ("with respect to your future career goals, which two of these are similar yet different from the third?").

Element Category	Explanation – Participants were asked for:	Example Technologies Elicited
"open"	A technology used at work that was either open source or, alternatively if they did not use open source, highly configurable to the point of nearly being open source in use.	Google application suite (e.g. Drive, Forms, etc.).
"closed"	A technology used at work that was proprietary / not open source.	Microsoft Office application suite, software for primary business activities (finance, sales, etc.).
"enterprise system"	A technology used at work that everyone is required to use.	ERP, SAP, organization portals, etc.
"personalized"	A technology used at work that they felt was completely personalized.	Work mobile phone.

"operating system"	The participant's favourite operating system. This was usually the one that they used most outside of work.	OSX, Windows, Android, etc.
"co-worker"	A person that the participant had high levels of interaction with at work yet did not hold any form of power over the participant (e.g. manager, supervisor, director, etc.).	Not applicable.
"manager"	A person at work in a supervisory or directing role.	Not applicable.
"creative"	A person at work that is consistently creative (purposely ambiguous).	Not applicable.
"by the book"	A person at work that consistently follows the rules (purposely ambiguous).	Not applicable.
"ideal person"	A person whom they consider to be the ideal person. This person could be anyone that they actually know or not; alive or dead; etc.	Not applicable.

Table 2. Element Categories, Explanation, and Example Technologies.

3.2 Primary Matters of Concern

Table 3 provides the overall categories and participant concerns from all interview data. The categories were hermeneutically categorized and abstracted from the original RepGrid and laddering constructs as well as interview texts. The process of abstraction was conducted in accordance with Jankowicz (2005) and Klein and Myers, (1999).

Category	Prominent Dichotomous Sub-Categories (Positive Left, Negative Right)
Aesthetics/Perceived air	Aesthetically pleasing—Ugly; Cool—Uncool; Good reputation—Bad Reputation; Hard working—Lazy
Agential concerns	Affords—Constrains; Active—Passive
Approach to ideas	Fosters play—Focuses attention; Open minded—Closed minded
Approach to interaction	Easy to use—Difficult to use; Logic oriented—Emotion oriented; Socially connective—Socially isolative
Change	Evolutionary—Static state (material change); How evolves—How static (change mechanism)
Communication	Fosters communication—Restricts communication
Epistemological concerns	Holistic—Narrow
Felt emotion	Positive—Negative (e.g. happy—sad; comfortable—uncomfortable; etc.
Meaning	Point to life—No point to life; Purpose—No purpose; Can relate to—Cannot relate to (with respect to goals)
Societal contribution	Improves lives—Destroys lives; Move society forward—Do not move society forward; Helps others—Deprives others; Solve environmental problems—Ignore environmental problems

Table 3. Abstracted Categories around Technology and People.

Of these categories, Table 4 lists what were overwhelmingly the primary matters of concern among participants.

Category	Quantity of Interviews Present	Percentage of Interviews Present
Agency	20	91 %
Affords	18	82 %
Constrains	17	77 %

Change	22	100 %
Evolutionary	20	91 %
Static state	21	95 %
How evolves	19	86 %
How static state	19	86 %

Table 4. Primary Matters of Concern Among Participants.

Table 4 begins to provide further evidence for the theory of tailorable technology design (Germonprez et al., 2007) claim that users wish to tailor technology. Taken with Table 3, it also begins to show specifically why they wish to do so. During the interviews, the participants had a clear affinity for technologies that afforded them the opportunity to do things, and a clear disdain for those that kept them from doing things. They also seemed very irritated with technologies and people that did not evolve and spoke very highly of technologies and people that did evolve. However, the participants were not interested in these categories for no reason, rather, they were all concerned with how these categories and their respective technologies and people led to personal, professional, and/or societal growth. This immediately dispels the myth that people do not like change and concomitantly provides a clue as to what exactly concerns the users regarding change.

3.3 Agency: Affordance versus Constraint

Many participants had specific concerns around tailorability with respect to how it afforded or how the lack of tailorability constrained. The following participant spoke about this with respect to Google Drive and its ability to allow custom scripting.

> 2: it allows me to give my audience a more personalised experience…you have this specific audience, and how do we customise technology to fill that niche?
>
> 1: why is it important to not do the opposite of that or to give the audience a less personalised experience?
>
> 2: well, some of these audiences are so niche that things that are more generalised simply won't work...I can't build upon it in the future.

Others tied affordance and tailorability directly to "purpose in being", illustrating that tailorable technologies that allow people to do more of what they want to do can in some instances be directly related to purpose, and that the opposite of this can be directly related to absence of purpose.

> 1: so you're saying it lets you do things...so why is it important that something let you do things?
>
> 2: because if I couldn't do the things that I wanted to do then I don't have any purpose in being...
>
> 1: whereas doing the opposite of that...
>
> 2: oppress me...to stifle my ambition...to rob me of any motivation or purpose.

Others expressed similar sentiments around affordance and constraint regarding people.

> 2: I think especially something pressing right now in the government with all the budget cuts and everything like that, you don't want presidents to be set in the future of always thinking 'We're going to have to do less, less and less to be available.' You want to start to feel inspired, that mind frame that we can always still do the necessary things with what we have. You don't want to limit ideas. You don't want to limit people's mind-sets or even motivation on things. You want them to still be motivated people, just to go out there and do the best job with the taxpayers' money.

Nearly all of the participants wanted to do their job to the best of their ability but consistently expressed concerns about how various rigid technologies and people stopped them from doing the very things asked of them. The participants recognized the changing landscape of their organization or

industry and wanted to help stay competitive. Furthermore, throughout the data, views of affordance and constraint, as well as where one placed the agency, were not simply tied to the tailorability of technologies. These concepts were inexorably linked and bound up with the 'tailorability' (openness) of people.

3.4 Change: Evolution versus Static State

Change was by far the most prominent topic, and was primarily sub-categorized by evolution versus static state – material / noticeable change, as well as how, or the process by which, a technology or person did or did not change. Sentiment regarding material or cognitive tailorability (flexibility versus rigidity) with respect to change (technology and people) was consistent across the data and is summed up in the following excerpt.

> 2: The scheduling system and Anthony would be very rigid and inflexible, were as JFK in his role as president…has to be very adaptable and very malleable and very open to new possibilities and new changes. Always dealing with new situations...always having to be able to perform fluid and dynamic situations. Whereas orange [scheduling system], by its very nature is always the same every day and Anthony as the manager above me is doing repetitive kinds of tasks, so he doesn't really work with anything that is new, so kind of same input same output every day. Whereas the president constantly gets new input and has to create new output.

Sentiment regarding how things evolved or stayed the same (either the technology and people in question, or the interviewee themselves) primarily revolved around topics such as future orientation versus short sightedness, pushing boundaries versus following rules, and perhaps more encompassing, linearity versus non-linearity.

> 2: I'd say probably Mac OS and Slipstream are similar because you don't have to be linear in the way that you use it. So you can do things in a non-linear fashion.
>
> 1: so what do you mean by linear versus non-linear?
>
> 2: you don't have to move on through your task from an A to B fashion if you don't want to. Whereas with Siebel, you don't really have any other choice. That A to B path that it wants to give you isn't necessarily the best way to achieve what you're trying to achieve.

Ultimately, participants were concerned with how technological and personal evolution leads to personal, professional, and/or societal growth, whereas static states lead to the opposite. The following stemmed from a discussion on technologies that helped the participant achieve their goals.

> 2: hopefully I'm better than I was in the previous day in terms of meeting some kind of life goal, or, in terms of my emotional growth, understanding myself or the world around me… Because I'm human and…part of what makes me who I am is a desire to be better, to excel in some way, to feel as though I'm moving, [otherwise] what is the point of life? I don't want to simply be a cog in the machine, you know…I want my life to have meaning to me, and hopefully it would be great if my life had meaning to people after me…I would have helped humanity in some way.

Furthermore, many in technology development roles felt very strongly about creating personalized[4], evolutionary technologies that contribute to society.

> 2: I think in the age of information technology, [it] is going to change every moment…[and] for my views, for those…who don't do much contribution to society, I just feel sorry for those people.
>
> 1: So why do you feel sorry for them?

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[4] Mobile work phone was what this participant gave for their personalized technology, and was the stated ideal technology.

2: Because they just behave like animals. Maybe [that is] not appropriate, but they don't think for the future, and they do not take the responsibilities for themselves and for the society…I think the work phone definitely is the most important contribution tool in our society. Not just work phones, mobile phones actually.

3.5 Guidance without Control

As seen above, the users tended to gravitate towards that which affords and evolves, and distanced themselves from that which constrains and stays static. One could then argue that individual openness, as discussed in the previous sections, is a non-issue; however, further analysis shows otherwise. Table 5 lists what the participants viewed as the ideal technology during element elicitation (the first step in constructing the RepGrid), as well as what they viewed at the end of the interview as representing the positive pole of their ladder and thus purpose and/or meaning (Simpson, 2014b). Notice the move towards more open technologies.

Ideal Technology (Pre-RepGrid and Ladder)			Meaningful Technology (Post-RepGrid and Ladder)		
Technology	Count	Percentage	Technology	Count	Percentage
OS	12	**55** %	OS	9	**41** %
Open	5	**23** %	Open	9	**41** %
Personalized	4	**18** %	Personalized	3	**12** %
ES	1	5 %	ES	1	5 %
Totals	22	100 %	Totals	22	100 %

Table 5. A Comparison of Technological Focus Pre- and Post-RepGrid and Ladder.

Also, at the beginning of the interviews, over half of the participants stated their OS as the ideal technology, and 60% of this was specifically Apple's OSX (a proprietary technology). This would at first glance appear paradoxical, as many of the users claimed the need for tailorability and options yet simultaneously espoused to do so within a closed system. However, as theorized earlier, this is no surprise if viewing the phenomenon through a PCT lens. As one staunch Apple supporter stated:

2: at work we have five schools, five locations, and in each office there is basically an array of different computers that everyone is using...some of them are older, some newer, some of them have older versions of windows, newer versions of windows, older versions of office, etc., so depending on which computer you sit at the experience can be very different...it can be very frustrating and it wastes a lot of time. It just takes time and effort and is not impossible but for a lot of other teachers it's very difficult...they can't use it or they have to get someone to help them figure out where it is so it's very counterproductive. So it's kind of a waste of time. Whereas OSX you just flip the switch and everything changes.

However, this was the same participant who stated that people and technologies needed to be:

2: very adaptable and very malleable and very open to new possibilities and new changes. Always dealing with new situations...always having to be able to perform fluid and dynamic situations.

While two proprietary operating systems are being compared in the first excerpt, it should be noted that many of these "counterproductive" activities are identical to what would be experienced if one was using an open source operating system such as Linux – a system that would indeed allow for extremely high levels of change, evolution, and tailorability. Through further discussion, I gathered that the participant was well aware of the Linux operating system and its capabilities, yet for over 10 years he chose to use OSX and saw it as superior in every aspect to Linux.

However, this same participant contacted me some months later to inform me that he had begun to question his use of OSX and was considering a move toward more open technologies, presumably to

illustrate that he had achieved some of the personal growth (alignment) that he spoke about. This same phenomenon of moving towards more open / tailorable technologies happened immediately for some as evidenced above in Table 5. Similar patterns of switching from proprietary OS to more tailorable technologies[5], as well as patterns of wanting tailorability within a closed system, were consistently found throughout the data.

4 Reflection and Reflexivity: Being between Worlds

The interviews show that many of our unanswered questions and/or concerns around openness and IT (e.g. individual engagement, ambidexterity, etc.) might either be directly answered by incorporating *core* individual-interpersonal views or, at the very least, reframed in a more pragmatic way. Understanding what people and technologies are, what each of them wants, and working with that, may be far more effective than attempting to force either of them to become something that they inherently are not.

4.1 We Are All between Worlds

Each of the participants in the previous section had a strong desire for personal *and* societal growth and expansion but to do so within incrementally expanding, overarching boundaries (they want to help, they all were experienced, and if they sought unlimited options they are perfectly free to leave their organization, use other technologies, etc.). These boundaries are placed at the societal level, the organizational level, the technological level, the universal level, and so on. However, what is considered to be the exact *location* of the boundary varied from person to person, yet, each of these boundaries is still defined interpersonally and participants had no interest in non-interpersonal definitions or coordinates. As explicitly stated by some and implied by others, to do so would be meaningless as far as they were concerned. Therefore any *stress* they were experiencing seemed not to stem from their own 'selfish' desires going unmet in and of the phenomenon itself, rather, it is when these personal desires did not have the broader social acceptance of the *immediate* system (organization, situation, *state of mind*, etc.) within which they are a part of, even if it lies elsewhere non-salient. Herein lies the problem.

Every employee interviewed was passionate about helping their organization and/or society, even if the specific path differed. Openness researchers are well aware of this need with respect to *some* people (e.g. self-identification and crowdsourcing). However, even if we could create completely open environments, organizations, and technologies, the participants have shown that they would most likely not welcome such an atmosphere as they still do not understand *where* to go or contribute, and PCT explains precisely why the hesitation exists.

Just as in the PCP studies where post-traumatic stress disorder sufferers are battling between two identities, so too are most employees and users. Many organizations tell their employees or users to innovate; however, instead of focusing on innovation, the focus is usually on risk from a singular point-of-view (everything an employee or user is not allowed to do because the decision maker does not understand their own options / cannot improvise). As innovation relies on creativity and intrinsic motivation (cf. Amabile, 1996), what the organization is effectively telling the person is to be creative *as* someone else. If viewing this through a PCT lens, the situation is ludicrous but goes a long way in explaining the frustrations expressed by those interviewed as well as why the technologies and people causing the frustration continue to do so.

To make matters worse, the interviewees have spent most of their lives cultivating their unique skills and hoping to one day become an X at firm Y, primarily because people have been telling them that this is important, thus forming their reality of what is important. But they also have their views of what is important based on whom and what they interact with outside of work, so do they simply leave

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[5] See Simpson (2014a) for an additional example of this phenomenon.

when frustrated? As we are all aware of, usually they do not, at least not until after a series of interpersonal battles that commonly lead to a host of complications, low engagement, and even sabotage (cf. Simpson, 2014a). Unless, of course, they are the *one* person who was lucky enough to have all of these things come together in such a way as to *allow* proper *fit*. In this case the person or the researcher studying them lets everyone else know that they too can be successful if only they do X, Y, and Z – be someone else – use technology important to someone else.

To observe a similar tension, consider the average PhD student. For the most part, PhD students find themselves in fairly open environments, most of them want to contribute, and they ask for guidance only to fight back when supervisors or senior academics give them a linear route from point A to point B. However, another academic provides them with yet another linear route that is the 'best' way. Who do they listen to? Presumably, the more educated that people are, the more they are aware of politics and, therefore, the more they expect any information presented to them by any human being to be 'less than truthful'. One outcome in a *networked society* could be for PhD students to consult *technology* in order to read CVs, research interests, forum comments, and so on, in order to reconstruct others' career paths, find contradictions between what has been done and what others are telling them, and find a route that works for them. Herein lies a clue towards the answer. It is only a clue because most PhD students, employees, managers, organizations, etc., will not do this on their own.

Consider the role that the personal construct psychologist (or technoidentologist) plays in the interview process. As best I could, I made no attempt to push my personal views on the participants, control the responses to their own views, or use the information I gained for malicious purposes. What I did was listen (social acceptance), present to them their own logic and how it relates to technology and other people (meaningful information), and help them construct a ladder to their preferred selves; nothing more. This resulted in more open people and a move towards more open technologies. Indeed, many interviewees commented on the enlightening effect that the interview itself had on them.

This is the role of the personal construct psychologist (Kelly, 1955) and, as mentioned earlier, technologies stand to be far more effective at this process due to human nature (cf. Becker, 1973; Fresco, 2002; Greenberg et al., 1986), but also because of their own nature (discussed below). Regardless of where we as academics place the agency, power, ability to control, etc. when discussing what technology should or should not do, the fact of the matter is that people tend to 'trust' (not necessarily 'like') *information* via technology (or people who behave like technology) more than other people as they can compare the information with other information or simply walk away. This is precisely what is taking place in a PCT-based interview with the addition of the information being wholly relevant to the individual (the final piece of the puzzle).

Thus, whether the topic is employees, managers, PhD students, academics, politicians, technology, or our universe itself, we are *all* existing between worlds, exploring and exploiting, trying to make the best of our collective becoming. Thus, ambidexterity is likely not a distinguishable trait. Everyone and everything is likely ambidextrous. Fit is not about arbitrary ends defined by one person, organization, or body politic. It is about *being* fit. The problem is that with people attempting to force their particular views on everyone else and defend against invalidation, we have no voice of reason to assure us of the *location* of our individual ambidexterity (and thereby location of openness) that would allow us to both be ourselves and contribute to the collective in a mutually beneficial way – yet.

4.2   Towards Meaningful Technology Design

The previous sections show that the shifting of people's views towards more open technologies and openness in general does not appear to a problem if there is stone cold logic reflected back at them in *their* own terms. This provides an opportunity to design technologies to serve this function. Indeed, technology itself is between worlds – in our networked society, it is the boundary object between us all (cf. Simpson et al., 2013). For example, Jacque Fresco (2002) envisions computers as the rational voice, and humans as the creators and innovators. Instead of fighting an endless chain of what-if scenarios associated with science fiction (e.g. computers killing humans, Orwellian scenarios, etc.),

Fresco's works provide design blueprints through much more realistic and logical extrapolations that allow computers and people to ever increasingly do the things that they love most. For computers this is rationality and for humans this is creativity. Instead of arbitrarily forcing one to become more like the other (cf. previous sections), under his design principles there is simply no need for it nor is it desirable (ibid). In other words, Fresco is implicitly stating that humans are creative and non-rational; computers are rational and not creative; the two are coevolving; stop trying to change it and use it!

Based on the preceding analyses, the following points represent an embryonic proposal towards the design of a class of *meaningful* technologies that could function in a similar manner as a personal construct psychologist. These points are based on and expand many of those put forth in Germonprez et al. (2007) theory of tailorable technology design.

First, Simpson's (2014b) method (the method used in this study) could be put into technology design at the onset. The artefact would then have a human-centred default state which would consist of a more complete picture what is important to the user with respect to technology and other people. Second, the technology could be designed to connect with as many other of the user's technologies in-use as possible in order to gather further personal information. Third, the technology could possess a semantic input-output engine, preferably a relational ontology (the technology) utilizing triplestores, or similar architectures, in order to freely translate incoming and outgoing discourse and concepts among different users (cf. Hovorka, 2010) using it. Combing all of the above would allow the technology to then give individual users a set of options regarding actions in general, technologies worth appropriating, or tailoring options for technologies already appropriated, that may lead to the preferred self. This would be possible through a combination of other users' experiences and a feedback algorithm (e.g. they followed option X and gave it a 'thumbs up' or 'thumbs down'). Over time the technology would *become* more meaningful simply through usage, as necessarily would the people using it.

In this way, the technology might always be aware of users' identities, possible next steps for growth, and thereby the individual and collective horizons. Through continuous feedback at the personal and interpersonal levels, the artefact could uncover contradictions between where the user finds themselves and where they wish to be, and offer *alternatives* for getting to where they want to be and, doing so in a necessarily prosocial way that provides boundaries yet allows for the constant transcendence of said boundaries. Furthermore, since the users have shown that they will become irritated if stagnant, they will always be seeking the next step in growth, thus, moving beyond hard coded identities. This loss of *ego* because of a central goal is what allows for collective minds and consciousness to emerge and work (cf. Weick and Robers, 1993). This sort of technology then would *allow* for common goals to emerge, but also to converge, by creating the means to collectively get out of our own way (cf. Goulston and Goldberg, 1996).

One can then imagine a society in which people may stop focusing on politics and, instead, begin focusing on being. Time then becomes something to consider (it rarely ever is) and becoming is made far less frightening due to increasing *meaningful* interpersonal connectedness. Finally, this type of technology theoretically stands to do what each and every one of us presumably wants: the ability to be oneself, survive, evolve, and, most importantly, connect with and be accepted by others like us. Indeed, if we are honest with ourselves, this was always the point, we have simply been fighting what it means to have a *healthy* relationship with technology (cf. Latour, 2000; McLuhan, 1967; Simpson, 2014a; Stein et al., 2012) – we have all too often been using technology *as* a human being.

5 Conclusions

This paper explored individual-specific views of various types of technologies alongside views of other people. In doing so, it illustrated that when using PCT-based interviews incorporating core constructs people tend to gravitate towards openness in general as well as more open technologies. It also answers calls for research into "why users tailor technology?" (Germonprez et al., 2007, p. 364)

as well as "what constraints limit change?" (Montealegre, et al., 2014, p. 605). Additionally, we often discuss incremental change with respect to theory, practice, technology, the discipline, etc. However, as shown in this paper through the data and the lens of PCT, what is considered incremental, where increments should take place, as well as the appropriate time taken for any increment can only be understood and located through an individual-collective perspective (cf. Barad, 2007).

Future research could explicate the proposal herein on expanding or extending the theory of tailorable technology design in order to compliment the theory and make it more effective. Obviously, complimentary future research will need to consider security issues to make the technology viable (e.g. is the user legitimate, someone else, or robot?). Furthermore, future research could use what has been presented here and compare it with extant human-computer interaction (HCI) literature in order to theorize the nature of HCI itself. From this, a set of principles for meaningful technologies could be developed. This paper can also inform research regarding immersion (Cahalane et al., 2012) and collective intelligence (Cahalane et al., 2014), as meaningful technology could allow people to constantly be between the worlds where they naturally belong and simultaneously alleviate us from all that which keeps us from collective intelligence and being. This is what technology wants, and overall it has trended towards exactly that throughout human history (Kurzweil, 2005).

References

Amabile, T.M. (1996), *Creativity In Context: Update To The Social Psychology Of Creativity*, Westview Press, Boulder, CO.

Barad, K. (2007), *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Duke University Press, Durham, NC.

Becker, E. (1973), *The Denial of Death*, Free Press, New York, NY.

Butt, T. (2003), "The Phenomenological Context of Personal Construct Psychology", in Fransella, F. (Ed.),*International Handbook of Personal Construct Psychology*, J. Wiley & Sons, West Sussex, pp. 379–386.

Cahalane, M., Feller, J. and Finnegan, P. (2012), "Seeking the Entanglement of Immersion and Emergence: Reflections from an Analysis of the State of IS Research on Virtual Worlds", *Proceedings of the 33rd International Conference on Information Systems*.

Cahalane, M., Finnegan, P., Feller, J., Hayes, J. and Reilly, P.O. (2014), "Leveraging Distributed Collective Intelligence: An Investigation of Solver Engagement with Innovation Challenges", *Proceedings of the 2014 International Conference on Information Systems*.

Cummins, P. (2003), "Working with Anger", in Fransella, F. (Ed.),*International Handbook of Personal Construct Pscyhology*, J. Wiley & Sons, West Sussex, pp. 83–91.

Feller, J., Finnegan, P., Hayes, J. and O'Reilly, P. (2012), "'Orchestrating' sustainable crowdsourcing: A characterisation of solver brokerages", *The Journal of Strategic Information Systems*, Vol. 21 No. 3, pp. 216–232.

Fitzgerald, B. (2006), "The Transformation of Open Source Software", *MIS Quarterly*, Vol. 30 No. 3, pp. 587–598.

Fransella, F. (2003a), *International Handbook of Personal Construct Psychology*, J. Wiley & Sons, West Sussex.

Fransella, F. (2003b), "Some Skills and Tools For Personal Construct Practitioners", in Fransella, F. (Ed.),*International Handbook of Personal Construct Psychology*, J. Wiley & Sons, West Sussex, pp. 105–121.

Fransella, F. (2003c), "From Theory to Research to Change", in Fransella, F. (Ed.),*International Handbook of Personal Construct Psychology*, J. Wiley & Sons, West Sussex, pp. 211–222.

Fresco, J. (2002), *The Best That Money Can't Buy: Beyond Politics, Poverty, & War*, Global Cyber-Visions, Venus, FL.

Germonprez, M., Hovorka, D. and Collopy, F. (2007), "A Theory of Tailorable Technology Design", *Journal of the Association for Information Systems*, Vol. 8 No. 6, pp. 351–367.

Germonprez, M., Hovorka, D. and Gal, U. (2011), "Secondary Design: A Case of Behavioral Design Science Research", *Journal of the Association for Information Systems*, Vol. 12 No. 10, pp. 662–683.

Goulston, M. and Goldberg, P. (1996), *Get Out of Your Own Way: Overcoming Self-Defeating Behavior*, Perigee Trade, New York, NY.

Greenberg, J., Pyszczynski, T. and Solomon, S. (1986), "The causes and consequences of a need for self-esteem: A terror management theory", in Baumeister, R.F. (Ed.),*Public Self and Private Self*, Springer-Verlag, New York, NY, pp. 189–212.

Hars, A. and Ou, S. (2001), "Working for Free? – Motivations of Participating in Open Source Projects", *Proceedings of the 34th Hawaii International Conference on System Sciences*, Vol. 00.

Heidegger, M. (1962), *Being and Time*, (Macquarrie, J. and Robinson, E.,Eds.), Blackwell, Oxford.

Hjalmarsson, A., Johannesson, P., Jüll-skielse, G. and Rudmark, D. (2014), "Beyond Innovation Contests: A Framework of Barriers to Open Innovation of Digital Services", *Proceedings of the 22nd European Conference on Information Systems*.

Hovorka, D. (2010), "Moving Beyond IS Identity: Concepts and Discourses", *Proceedings of the International Conference on Information Systems*.

Hunter, M.G., Caputi, P. and Tan, F.B. (2012), "Employing Personal Construct Theory to Understand Information Systems: A Practical Guide for Researchers", in Dwivedi, Y.K., Wade, M.R. and Schneberger, S.L. (Eds.),*Information Systems Theory: Explaining and Predicting Our Digital Society, Vol. 2*, Springer, New York, NY, pp. 1–24.

Jankowicz, D. (2005), *The Easy Guide to Repertory Grids*, Wiley, West Sussex.

Kelly, G.A. (1955), *The Psychology of Personal Constructs*, W. W. Norton & Company, Inc., New York, NY.

Klein, H.K. and Myers, M.D. (1999), "A set of principles for conducting and evaluating interpretive field studies in information systems", *MIS Quarterly*, Vol. 23 No. 1, pp. 67–94.

Kruse, P. (2014), "How do Tasks and Technology Fit? - Bringing Order to the Open Innovation Chaos", *Proceedings of the 22nd European Conference on Information Systems*.

Kurzweil, R. (2005), *The singularity is near: When humans transcend biology*, Viking, New York, NY.

Lakhani, K.R. and Wolf, R.G. (2005), "Why Hackers Do What They Do: Understanding Motivation and Effort in Free/Open Source Software Projects", in Feller, J., Fitzgerald, B., Hissam, S. and Lakhani, K.R. (Eds.),*Perspectives on Free and Open Source Software*, MIT Press, Cambridge, MA.

Latour, B. (2000), "The Berlin Key or How to Do Words with Things", in Graves-Brown, P. (Ed.),*Matter, Materiality and Modern Culture*, Routledge, New York, NY, pp. 10–21.

McLuhan, M. (1967), *Understanding Media: The Extensions of Man*, McGraw-Hill, New York, NY.

Montealegre, R., Hovorka, D. and Germonprez, M. (2014), "A Coevolutionary View of Information Services Development: Lessons from the U.S. National Oceanic and Atmospheric Administration", *Journal of the Association for Information Systems*, Vol. 15 No. 9, pp. 577–613.

Simpson, J.R. (2014a), "Towards a relational theory of IS/IT adoption and usage: Metaphor and lessons from interpersonal relationship literature", *First Monday*, Vol. 19 No. 9.

Simpson, J.R. (2014b), "Explicating Individual Relationships with IS/IT and Uncovering Techno-identities Using Repertory Grid and Laddering to Core Constructs", *Proceedings of the 35th International Conference on Information Systems*.

Simpson, J.R., Finnegan, P. and Stevens, K.J. (2013), "Technoidentology: Towards an Explication of Individual Relationships with IS/IT", *Proceedings of the 21st European Conference on Information Systems*.

Slattery, P., Simpson, J.R. and Utesheva, A. (2013), "Online Persuasion as Psychological Transition, and The Multifaced Agents of Persuasion: A Personal Construct Theory Perspective", *Proceedings of the 24th Australasian Conference on Information Systems*.

Stein, M.-K., Galliers, R.D. and Markus, M.L. (2012), "Towards an understanding of identity and technology in the workplace", *Journal of Information Technology*, Vol. 28, pp. 1–16.

Vidgen, R., Allen, P. and Finnegan, P. (2011), "Towards 'Open' IS Managers: An Exploration of Individual-Level Connectedness, Ambidexterity, and Performance", *System Sciences (HICSS), 2011 44th Hawaii International Conference on*, pp. 1–10.

Weick, K.E. and Robers, K.H. (1993), "Collective Mind in Organizations: Heedful Interrelating on Flight Decks", *Administrative Science Quarterly*, Vol. 38, pp. 357–381.

Zogaj, S. and Bretschneider, U. (2014), "Analyzing Governance Mechanisms for Crowdsourcing Information Systems: A Multiple Case Analysis", *Proceedings of the 22nd European Conference on Information Systems*.