

Villa College

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VC Research Digest provides updates on current and ongoing research projects of Villa College staff and students, and provides fresh research ideas and snippets to help expand the horizon of research and inquiry

EDITORIAL

The Subtle Art of Putting on a Researcher's Hat

Dr Ahmed Shahid, Dean of Research, IRI, Villa College
Editor (VC Research Digest)

As researchers, we must develop a highly focussed and refined mindset and frame of reference *vis-à-vis* the phenomenon that we target in our research. We must be open to explore all nooks and corners of the research topic and its context, while maintaining an unwavering focus on the core interest of the research. We must be curious to capture the essence of the phenomenon in such a way that sheds new light to the problem like never before – with the possibility of creating that “Eureka!” moment.

As the Hungarian Nobel Laurate Albert Szent-Gyorgyi says, “*Research is to see what everybody else has seen and to think what nobody else has thought.*” I have used this quote quite often while teaching research students, to emphasise the importance of refining our thought processes and perspectives and to flip on our ‘curiosity switch’ whenever we work on a research project. This way we can free our minds of the mediocrity of everyday lives and start seeing the world in a completely different light. We can then appreciate a phenomenon as something that can be unpacked and unravelled using our research tools and techniques. We can truly embrace a phenomenon like it was never understood before. Such a serendipitous mindset requires discipline on the part of the researcher – in other words, the researcher should wear a proper researcher’s hat.

The researcher must start by practicing abstract thinking and mental visualisation of concepts and patterns related to the research phenomenon. This is easier said than done. Abstract thinking allows an individual to examine details of a problem conceptually in a manner that creates new insights and original thought processes. This form of thinking allows the researcher to target the focus of the research towards a problem dimension that can create meaningful new knowledge. The researcher’s ability to visualise and comprehend intricate connections between variables and conceptual structures would be fundamental in determining the methodological stance adopted for this journey of discovery. On the other hand, if the researcher lacks mental clarity or is enmeshed in a murky haze of doubt, the research is unlikely to create any valuable knowledge or lead to any worthwhile discovery.

The researcher must also be excellent at grasping meaning from concrete observations and empirical data. ‘Making sense of the world’ requires the researcher to be armed with the right kind of tools to generate and interpret meaning out of numbers and stories that make up the dataset. Unlike the abstract form of conceptualisation discussed earlier, the empirical mindset of the researcher must be driven by concrete, and verifiable evidence. The researcher must be proficient in generating meaning from the data in a manner that creates a brand-new understanding of the phenomenon.

So, what colour is the researcher’s hat?

Always keep in mind that research involves constantly moving back and forth between a data-driven empirical plane and an abstract or theoretical mental plane where concrete observations are abstracted into concepts and theories. Therefore, the most beneficial strategy for having a more agile mind and being effective as a researcher is to combine these two types of thinking into one. Only then will the researcher be able to immerse himself/herself completely to the unique worlds of abstract thinking and empirical analysis.

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Memo Writing as a Qualitative Data Analytical Tool: A Commentary

Dr Aishath Nasheeda

Assistant Professor, Faculty of Educational Studies, Villa College

Memos are created as part of a reflective process in making meaning from the available data. As the fundamental goal of qualitative researcher is to collaboratively co-create the participants narratives, writing memos is considered as an investigative lens that allows researchers to immerse themselves into conversation with data which are otherwise difficult to achieve (Birks et al., 2008). When adopted as a method of inquiry, memo writing guide researchers to dive into data through critical question such as “What does the transcript tell me about my research?”, and “What does this quote in the text mean?”. Through these questions, memos help researchers to converse with the data by allowing researchers to stay focused and not interpret the questions beyond the data (Saldana, 2016). Memos have been an instrumental component in meaning making process in qualitative research particularly in grounded theory. Hence, writing memos are not restricted to analytical phase but to the conceptualization of ideas (Birks et al., 2008). Additionally, there are several ways that memos are written, however, this article presents writing memos as tool for data analysis.

Early-stage memos

This is the very first record of what the researcher observes in the data. Re-reading the text data and attention to detail helps the researcher to see what is happening in the field. Look for emerging codes to identify the connections between the conversation and activities happening in the field for a structural process. The early-stage memos help researchers in maintaining the focus of the study with the data analysis process. Charmaz, (2006) proposed some basic questions that could be helpful in creating early-stage memos.

- What are the participants doing/saying?
- What is going on in the field?
- How does the research participant(s) think, feel and act during the process?

Once early-stage memos are created it is important to organize the memos into subtopics and identify the assumptions that support it. Make a note and place the memo with an argument for comparison with other memos and data. This process can spur narratives that support definitions of categories and claims within your qualitative research.

Using Memos to increase focus in data analysis

Memos are a great way to increase focus in the data analysis process particularly with data coding, by raising them into conceptual categories. The categories explicate ideas that can be sub themed for conceptualization of a framework which explains the process and predictions identified from the data. Thus, the narrative statements in memos begin with:

- the definition of the category
- specifying the conditions under which categories arises, fixed, or changed
- describing the consequences
- demonstrating how the category is related to the other category

Concluding and tying up thoughts

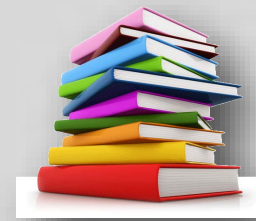
Looking back at the early-stage memos one might consider it as complete, however, this might be a good time to reflect as there may still be nagging questions and early ideas that were discarded within this process. For this reason, it is crucial to keep every record on the early-stage memos, just in case to revisit, review, and

revise the memos. Time and distance away from data can clear things up to allow researcher to identify gaps and missing links.

While there are several ways that memos are written, it is also important to understand the functions of the memos. Memos are useful in recording the decision-making process that guides the research from conceptualization to completion. Furthermore, memos enable researchers to stay focused on what the data is conveying. Memos also allows space and place for researchers working as a team to record critical perspectives of each researcher and the decision-making process, aiding bias free communication (Birks et al., 2013). Hence, making it an effective tool that can be used to enhance the research experience.

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FROM THE WORLD OF RESEARCH

The discourse of social innovation and gender equality

Johanna Lauri

ABSTRACT

In Swedish government discourse, social entrepreneurship and social innovation have come to be articulated as the solutions to a wide array of societal challenges and social problems. Within this discourse of social innovation, gender equality is articulated as a key determinant in conquering all societal challenges defined in the UN's Agenda 2030. The aim of this paper is to analyse the Swedish government's discourse on social innovation, and how it intertwines with gender equality in select government texts and media material. The analysis starts from the assertion that the dominant discourse on social innovation and social entrepreneurs is part of generating the possibilities and limits of social change. Earlier research on social innovation dis-course has shown a strong bias towards private market solutions, and that social innovation has become an essential trait in the neoliberal reforming of the state. Because of their particular influence, government's public endorsement of social entrepreneurs and social innovation in their work is one of the factors shaping the understanding of what social change and gender equality are and how they can be achieved. The analysis shows that the government discourse of social innovation produces an understanding of businesses as having a strong desire and capacity for social change and an altruistic agency. From a discursive point of view, this could be read as if the public sector is lacking such qualities and thus the responsibility for social change is placed in the hands of private corporations. Social change and gender equality are hence made intelligible within an economic logic, equating social change with doing business and gen-der equality with making profit. Gender equality is thus articulated through the discourse of social innovation, as a means to an end.

Read on...<https://www.jstor.org/stable/10.13169/prometheus.37.1.0027>

SCAN ME



Life Cycle Analysis on Laptop

Dr Nafeena Abdul Munaf¹ and A. Abdul Munaf²

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Life Cycle Assessment

The factual investigation of a product's whole life cycle in terms of sustainability is known as life cycle assessment (LCA) (Klöppfer & Grahl, 2014). Every stage of a product's life cycle – material extraction from the environment, product creation, usage phase, and what happens to the product once it is no longer utilised – can have a significant environmental impact. You can assess the environmental implications of your product or service from the beginning to the end, or from cradle to grave, using LCA tools. In this Work Life Cycle Assessment of laptop was done on considering various impacts on assessment.

Life Cycle Thinking

Understanding what an LCA is and how it works means thinking about industrial products and activities from a life cycle perspective. It may seem strange to think of inanimate objects, such as toaster ovens and the use of water in factories, as possessing a life cycle, but LCA assumes it. Every product, whether a simple plastic cup or a sophisticated electric car can be associated with a life when it is "born" and ends its life when it is no longer useful.

Cradle to cradle

The cradle-to-cradle certification system is based on qualitative visions and narrative, with qualitative criteria used to determine whether a product qualifies for certification. Material health, material reuse, renewable energy and carbon management, water stewardship, and social equity are among the criteria (Klemes, 2015). The product's total grade is determined by the lowest score on these criteria. Cradle-to-cradle does not assess if a certified product

has a decreased overall environmental impact, hence a cradle-to-cradle-certified product may have a shifted or even increased environmental impact.

Circular economy

The circular economy is an inspiring strategy for maximising economic, social, and commercial value while reducing resource use and environmental impacts by reducing, reusing, and recycling. Life cycle assessment, on the other hand, is a robust and science-based technique that uses an accounting approach to analyse the environmental impacts of products, services, and business models. When you combine the reliability of the LCA methodology with the inspiring concepts of the circular economy, you get a comprehensive approach to innovation.

Benefits of doing LCA

An LCA's findings can assist corporations, policymakers, and other groups in making more informed decisions in the pursuit of sustainability. It gives crucial information that can be used to assist the following:

- enhancements to processes and product design
- promotion (e.g., backing up environmental claims or meeting consumer demand for green products)
- study of hotspots to aid in ongoing improvement
- approach for assessing major environmental consequences (e.g., greenhouse gas emissions, carbon emissions, water use, and energy consumption)
- goal setting for climate-change and other sustainability strategies

Who performs an LCA?

LCA can be performed by a Certified Professional (LCACP), but certification is not required. Many engineers in various industrial sectors regularly perform life cycle assessments and related modelling to advance their sustainability efforts. In the United States, LCACP certification is awarded by the US Lifecycle Assessment Center (ACLCA) (Shaked & Jolliet, 2011).

LCA on Laptop

In this electronic world, E-waste is going to be a predominant cause for environmental degradation. During the COVID pandemic, software, and educational industries mostly relied on laptops. It is the right time to investigate the various impacts of laptops on environment and analysing the life cycle of a laptop from manufacturing to its end of life. In this paper detailed LCA done for Laptop, Fig.1 shows various stages of a laptop from manufacturing to introducing to the market. Fig.2 shows components of a MACBOOK.

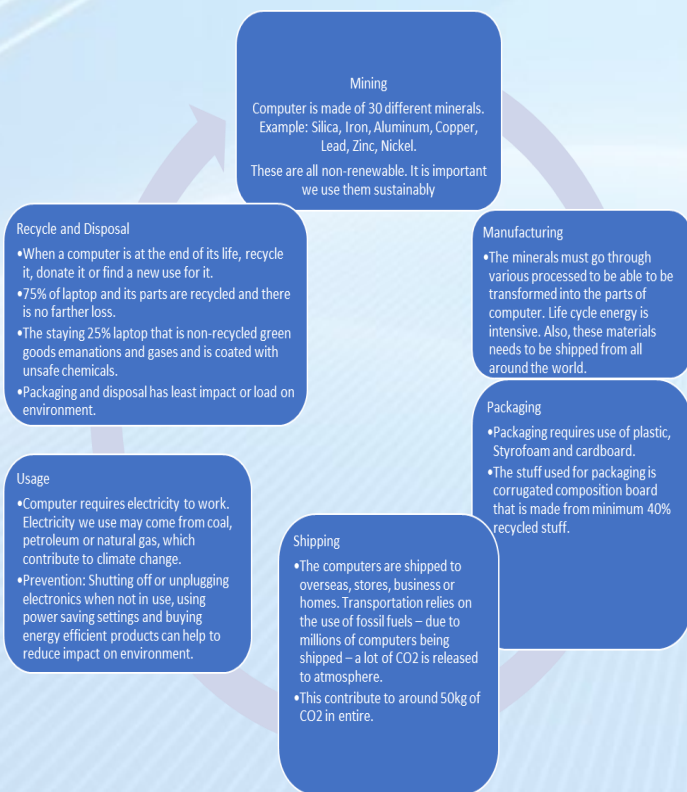


Figure 1. Screening stages based on LCA on Laptop

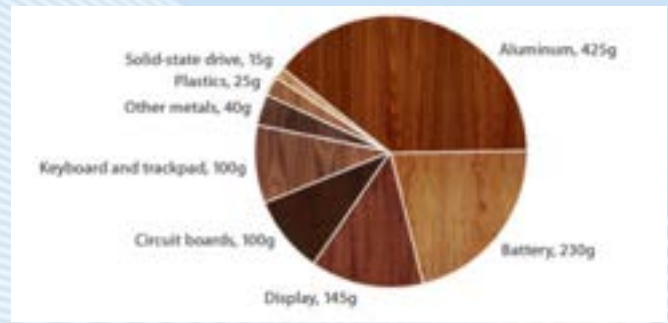


Figure 2 Components of MACBOOK Air

Social Impact

Inhumane and inappropriate social patterns such as child labour, unfair wages, discrimination, unhealthy and dangerous patterns in states such as Chile, Congo, China, and Indonesia where natural resources are mined, and goods are manufactured (Das, 2021). Table 1 shows the usage of packaging materials.

Table 1 Packaging for 11' MACKBOOK Air

Material	Retail Box	Retail and
Paper (corrugate,	329g	627g
Molded fiber	-	187g
High-impact pol-	136g	136g
Other Plastics	22g	22g

Human Toxicity

At production stage: motherboards, LCD, battery production uses harmful chemicals like beryllium, Lead [circuit board], Mercury or Indium used in LCD Production are extremely toxic and carcinogenic.

Impact on Environment:

Overall, approximately 320kg of CO₂ is release during whole life of rhythm laptop. Fig.3 shows usage of CO₂ in various levels of production and usage of Laptop.

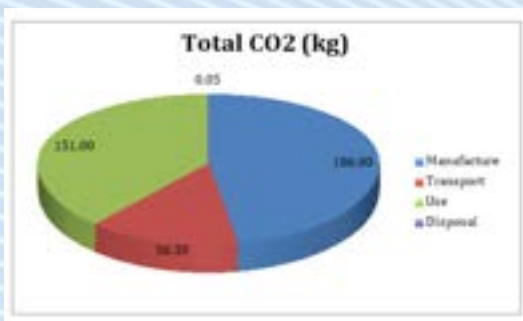


Figure 3 Usage of CO2 in the production of LAPTOP

Climate Alteration

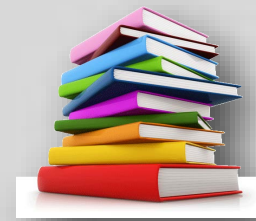
Laptops require electricity to manufacture or operate. Coal is still widely used for power generation. Burning coal produces toxic gases.

Conclusion

Life cycle analysis study gives as proper impacts on environment in every stage of manufacturing. In this way we can preserve our planet from issues of emissions and contaminants. It not only leads to protect environment, it can also be a marketing tool to promote a product as a sustainable one.

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FROM THE WORLD OF RESEARCH

Learning to understand: disentangling the outcomes of stakeholder participation in climate change governance

Jose Danial Teodoro and Christina Prell

ABSTRACT

Stakeholder participation is increasingly seen as beneficial for short and long term responses to climate change risks. Past research highlights the role social networks play as both a key outcome of participation, as well as an important step towards other environmental governance goals. This paper focuses on the social relation of mutual understanding, which is often discussed in the environmental governance literature, but has yet to be studied as an empirical social network in its own right. Our paper builds and tests a conceptual framework linking participation to mutual understanding and social learning. We analyze three waves of network and perceptions data gathered on stakeholders participating in the Integrated Coastal Resiliency Assessment (ICRA) project, a 2.5 year-long project aimed at developing a collaborative research assessment on the vulnerabilities to climate change experienced by an island community located in the Chesapeake Bay, USA. Our findings suggest that participation (measured as co-attendance in project events) leads to the formation of mutual understanding ties among stakeholders, but these ties do not necessarily lead to more similarity in stakeholders' perceptions on climate change. We reflect on these findings, and the project more broadly, noting that our study lends support to scholars arguing that feelings of mutual understanding are potentially more important for certain forms of collective action, as opposed to whether or not stakeholders increase their shared beliefs or perceptions about the environmental problem in question.

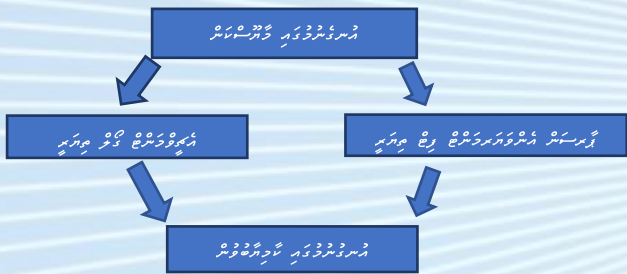
Read on...<https://doi.org/10.1016/j.socnet.2022.02.006>

SCAN ME



ترتیباً در تالیفات اخیر، به بررسی و ارزیابی سیستم‌های مدیریت و کنترل انرژی و آب در ساختمان‌ها پرداخته شده است. در این زمینه، سیستم‌های مدیریت انرژی (BEMS) و سیستم‌های مدیریت آب (WMS) به‌عنوان ابزارهای مهم شناخته شده‌اند. این سیستم‌ها با استفاده از سنسورها و تجهیزات اندازه‌گیری، مصرف انرژی و آب را به‌طور دقیق ثبت کرده و با استفاده از الگوریتم‌های کنترل، مصرف را بهینه می‌کنند.

در سال‌های اخیر، با توجه به اهمیت بهای انرژی و آب، نیاز به سیستم‌های مدیریت و کنترل این منابع حیاتی در ساختمان‌ها به‌طور فزاینده‌ای احساس می‌شود. سیستم‌های مدیریت انرژی (BEMS) و سیستم‌های مدیریت آب (WMS) از جمله این سیستم‌ها هستند که با استفاده از سنسورها و تجهیزات اندازه‌گیری، مصرف انرژی و آب را به‌طور دقیق ثبت کرده و با استفاده از الگوریتم‌های کنترل، مصرف را بهینه می‌کنند. همچنین، این سیستم‌ها می‌توانند داده‌های مصرف را به مدیران ساختمان ارائه دهند تا بتوانند تصمیمات بهتری در مورد مصرف انرژی و آب اتخاذ کنند.

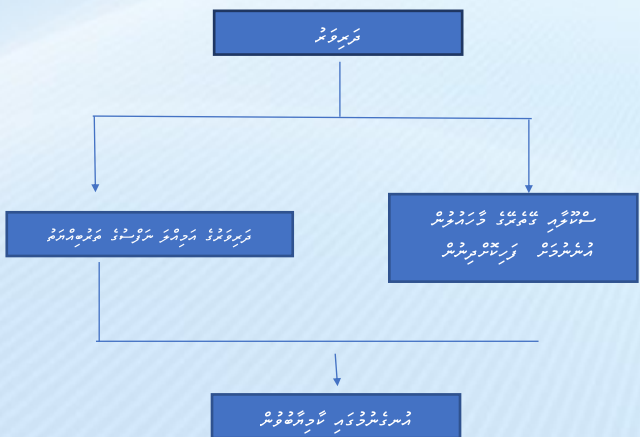


شکل ۱: سیستم مدیریت انرژی و آب

در این سیستم، داده‌های مصرف انرژی و آب از طریق سنسورها جمع‌آوری می‌شود و به سیستم مدیریت انرژی و آب ارسال می‌گردد. سیستم مدیریت انرژی و آب با استفاده از الگوریتم‌های کنترل، مصرف انرژی و آب را بهینه می‌کند. همچنین، این سیستم می‌تواند داده‌های مصرف را به مدیران ساختمان ارائه دهد تا بتوانند تصمیمات بهتری در مورد مصرف انرژی و آب اتخاذ کنند.

چگونه می‌توانیم مصرف انرژی و آب را کاهش دهیم؟

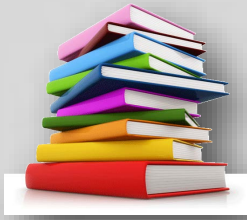
برای کاهش مصرف انرژی و آب در ساختمان‌ها، می‌توانیم از روش‌های مختلفی استفاده کنیم. یکی از این روش‌ها، استفاده از سیستم‌های مدیریت انرژی و آب است. این سیستم‌ها با استفاده از سنسورها و تجهیزات اندازه‌گیری، مصرف انرژی و آب را به‌طور دقیق ثبت کرده و با استفاده از الگوریتم‌های کنترل، مصرف را بهینه می‌کنند. همچنین، می‌توانیم از روش‌های دیگری مانند استفاده از لامپ‌های کم‌مصرف، شیرهای آب اتوماتیک و استفاده از پنل‌های خورشیدی نیز استفاده کنیم.



شکل ۲: سیستم کنترل انرژی و آب

در این سیستم، داده‌های مصرف انرژی و آب از طریق سنسورها جمع‌آوری می‌شود و به سیستم کنترل انرژی و آب ارسال می‌گردد. سیستم کنترل انرژی و آب با استفاده از الگوریتم‌های کنترل، مصرف انرژی و آب را بهینه می‌کند. همچنین، این سیستم می‌تواند داده‌های مصرف را به مدیران ساختمان ارائه دهد تا بتوانند تصمیمات بهتری در مورد مصرف انرژی و آب اتخاذ کنند.

در کنار سیستم‌های مدیریت انرژی و آب، استفاده از روش‌های دیگری مانند استفاده از لامپ‌های کم‌مصرف، شیرهای آب اتوماتیک و استفاده از پنل‌های خورشیدی نیز می‌تواند به کاهش مصرف انرژی و آب در ساختمان‌ها کمک کند. همچنین، آموزش مدیران و کارکنان ساختمان در مورد روش‌های کاهش مصرف انرژی و آب نیز می‌تواند بسیار مفید باشد.



FROM THE WORLD OF RESEARCH

Justice in the Social Distribution of Health

Johannes Knies

ABSTRACT

How should we think, from the point of view of distributive justice, about inequalities in health and longevity? Norman Daniel's influential account derives a social duty to reduce health inequalities from Rawl's principle of fair equality of opportunity. This paper criticises Daniel's approach and offers an alternative. To the extent that the basic structure of society shapes people's opportunities to be healthy, we ought to think of 'the social bases of health' directly as a Rawlsian primary social good. The paper attempts to clarify the correct principle for its distribution, and its relationship to other goods that give rise to considerations of justice.

Read on... <https://www.jstor.org/stable/45237364>

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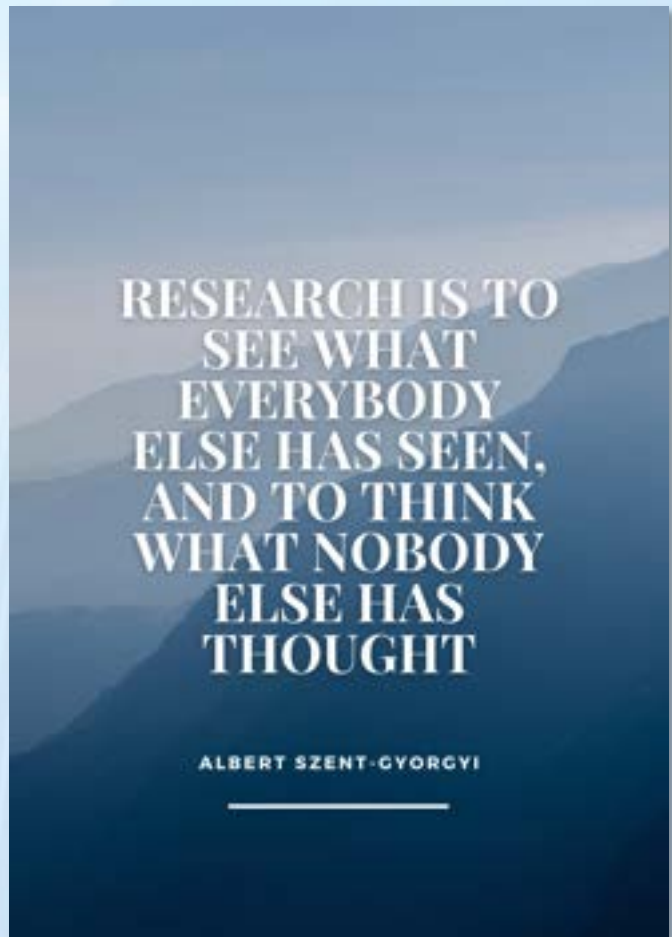
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Cultural Historical Activity Theory in research: Three generations (Part 1)

Dr Ibrahim Latheef

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As conceived by Vygotsky in 1924 and further developed by his disciples such as Leont'ev, Cultural Historical Activity Theory (CHAT) has evolved over the years. There are three distinctive generations that are identified in literature. The first generation was conceptualised by Vygotsky (1934), second generation was developed by Leon'ev, and the third generation was expanded by Engestrom. It is important to understand that the terms 'cultural historical theory', 'activity theory' and 'cultural historical activity theory' are used interchangeably in the literature (see for example, Nussbaumer, 2012; Yamagata-Lynch, 2010) and, since activity theory was conceived from Vygotsky and his colleagues' cultural historical psychology, there is a very fine line between both theories; therefore, many authors now collectively refer to these theories as CHAT (Kaptelinin & Nardi, 2006). In this three-part series the first generation is discussed in this post.

Based on literature, the first generation of CHAT is credited to Vygotsky recognizing his original work in 1920s Russia. Vygotsky was a Russian Jewish scholar who lived much of his time in post-revolutionary Moscow and worked closely with Leont'ev and Luria from 1924 until his death in 1934. Vygotsky considered him as a Marxist and based on that ideology developed a theory of psychology of humans transforming their material conditions through their labour (Yamagata-Lynch, 2012). Vygotsky's work expanded on how people use their own social activities by changing their own conditions of existence, and thereby changing themselves.

One of the key arguments of Vygotsky (1934), was that culture passed down through signs and adoption

of meaning was not learned through instructions but while individuals engage in collective socially mediated joint activities. This concept of mediation was highlighted in his famous triangular model of "a complex, mediated act" which was commonly expressed as the triad of subject, object, and mediating artefact (see figure 1). This concept disrupted the traditional idea of interdependence between response and stimuli by including the role of the tool in human activity.

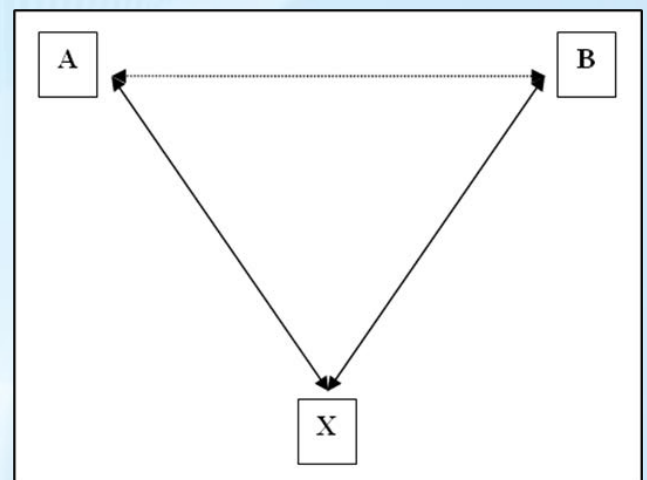


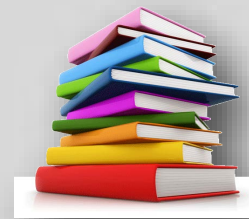
Figure 1 First generation activity system

Here A represents the subject (e.g., teacher or students in a classroom), B represents the object (e.g., the task of creating a slideshow on the IWB), and X represents the tools adopted to achieve the task (e.g., an IWB). According to Edwards (2005), this model explains consciousness based on how tools are used in mediation and the collective understanding is incorporated into the individual consciousness. Furthermore, tools are not just tangible items such as the IWB, computer, pen, or paper; they include symbolic systems such as language, charts, and methods of calculation.

Since first conceived by Vygotsky, there are three distinctive generation of CHAT identified in literature. As any theory, CHAT is evolving with the changing world and is highly scrutinized. One of the limitations of Vygotsky's main idea was its individualistic approach to human activity (Edwards, 2005). As critiqued by Engeström (1987) the limitation of this generation of CHAT is that the unit of analysis is individually focused. However, the first generation is considered the cornerstone of the sociocultural psychology.

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FROM THE WORLD OF RESEARCH Online Practical Deep Learning Education

Binbin Yong, Xuetao Jiang, Jiayin Lin, Geng Sun and Qingguo Zhou

ABSTRACT

Deep learning (DL), as the core technology of artificial intelligence (AI), has been extensively researched in the past decades. However, practical DL education needs large marked datasets and computing resources, which is generally not easy for students at school. Therefore, due to training datasets and computing resources restrictions, it is still challenging to popularize DL education in colleges and universities. This paper considers solving this problem by collective intelligence from a resource sharing perspective. In DL, dataset marking and model training both require high workforce and computing power, which may implement through a resource sharing mechanism using collective intelligence. As a test, we have designed a DL education scheme based on collective intelligence under the background of artistic creation to collect teaching materials for DL education. Also, we elaborate on the detailed methods of sharing mechanisms in this article and discuss some related problems to verify this shared learning mechanism.

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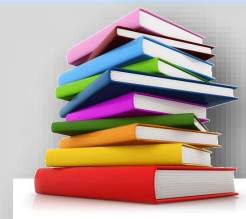
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FROM THE WORLD OF RESEARCH

Care Managers and Families

Donna Benton

ABSTRACT

If the goal of care management is to provide quality of life through care planning that is congruent with the wishes of older adults, then models for care management need to proactively include the family caregiver when they are part of the older adults' caring community. Family-centric care management improves outcomes and social networks that support older adults in the home. Policies and programs that successfully use a family and older adult care model will reduce healthcare costs, improve inclusion of diverse family values, and positively modify health disparities associated with diverse families of care.

Read on...<https://www.jstor.org/stable/10.2307/48631218>

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