"Yes, it's my fault, but I couldn't help it." How acknowledging control and responsibility can be just one bridge too far.

Cathy Van Dyck
Gert J. Homsma

Abstract

We investigate whether an obvious, and agreed upon cause for error occurrence is interpreted in the same way by different people. We presented participants with difficult puzzles, for which we purposely gave them too little time to solve. In line with this manipulation, 93% state that time pressure was the most important reason for incorrect solutions to the puzzles. Analysis of experienced Locus, Stability, Control and Responsibility related to this cause, shows agreement on the cause itself does not translate into interpretation of the cause. That is, high variance on all four attribution dimensions is found. Further analysis of exact wording of the error cause, illustrates how the same cause yields high experienced control and responsibility for some, and low control and responsibility for others. Implications for theory and practice are discussed.

When dealing with errors, constructive error handling is crucial. Error handling predicts control of error consequences, learning from error and subsequent performance (Edmondson, 1996; Frese, 1995; Göbel & Frese, 1999; Van Dyck, Frese, Baer & Sonnentag, in press). A prerequisite for learning, however, would logically be that a person acknowledges to have made an error in the first place. Van Dyck (2005a) demonstrated that attribution of error causes indeed plays an important role in the relationship between error approach and performance. Participants working under error mastery instructions more often attribute errors to internal unstable causes, while participants working under error aversion instructions more often attribute errors to external causes. Internal unstable attribution of failure leads to a enhanced self-efficacy as it is primarily focused on what can be improved (e.g. Bandura, 1997; White, 1959). Indeed, an experiment of Homsma and colleagues (Homsma, Van Dyck, De Gilder, Koopman & Elfring, 2005) further showed that participants that had been instructed to attribute errors to internal, unstable causes, reported greater control for error causes, which inturn yielded higher subsequent expectancy of success and quality of strategy. Yet, the same research suggests that the relationship between causal ascription and causal interpretation is not as straightforward as commonly thought.

Causal ascription entails the assignment of core causal characteristics, that, by themselves, do not convey valence or meaning. Causal ascription is merely a categorization of the cause according to the classical dimensions locus and stability (Heider, 1958). The cause lies either within the person or outside, and is likely to fluctuate or remain stable. Causal interpretation, in contrast, entails sense-making, and giving meaning

to the cause. It implies an interpretation of who could and should have acted differently: Control and responsibility are assigned (Homsma *et al*., 2005).

Internal, unstable error causes would, at least in principle, logically coincide with controllability of error occurrence (Weiner, 1985). Similarly, internal causes should be associated with responsibility for error occurrence (Weiner, 1980). Yet, causal ascription, in reality does not directly, or fully, predict interpretation in terms of either control or responsibility. This point is illustrated by the cheating spouse, who has been caught and proclaims "I could not help it, it was stronger than me." Locus of the reason for cheating lies internally, and unstable – let us assume for argument' sake that the spouse is not overwhelmed by urges on a day to day basis. Yet, control is clearly refuted. Similarly, with clear internal locus, responsibility is averted by the murderer in the movie "What lies beneath" (Zemeckis, Starkey & Rapke, 2000) when he states "She left me no choice".

It thus seems wise to further investigate how people make sense of error causes. For this purpose, we confront all participants in our study with one explicit, hard to argue cause for incorrectly solving puzzles offered. We then test (a) whether they indeed see the cause similarly to our inducement (manipulation check), and (b) whether this cause is ascribed and interpreted similarly by all.

Sixty-eight participants were asked to work on eleven so-called Tower of London puzzles.[1] Tower of London (Shallice, 1982) is a task that involves mental planning activities, commonly used for the assessment of frontal lobe functions (e.g., Van Den Heuvel *et al*., 2003). The puzzles involve (mental, not actual) moving of colored balls between three small sticks from a start situation to a goal situation. Balls are to be moved one by one. The idea is to think out the lowest amount of steps needed to get from the start situation to the goal situation. In our study, we selected difficult Tower of London-puzzles, and piloted the average time needed to complete them. We then offered our participants even less time (i.e., 7 seconds) than required for each puzzle, thereby introducing an error inducement, based on time pressure. Indeed, participants failed on 88% (*SD* = 9.55) of the puzzles.

We then asked participants to write down the most important reason for incorrect solutions. Further, participants were asked about causal ascription and interpretation of the reason they had just offered, using the Causal Dimension Scale (CDSII; McAuley, Duncan, & Russell, 1992) for Locus, Stability and Control, and our own additional scale for Responsibility (Homsma *et al*., 2005). Each of the four scales contains three items. Reliability for Locus was .82 (Cronbach's alpa, scale ranges from 1 = external, to 5 = internal), .68 for Stability (1 = unstable, 5 = stable), .68 for Control (1 = low control, 5 = high control), and .68 for Responsibility (1 = low responsibility, 5 = high responsibility).

Not surprisingly, 63 participants (i.e., 93%) attributed incorrect solutions to time pressure. The five participants that did not attribute to time pressure offered the following causes: "Did not see it properly"; "The task

was not clear"; "I was so focused on the steps, that I missed everything else"; "I have a hangover"; and "I am tired and nervous".

With the great majority of participants blaming time pressure, surely locus of causality should be highly external for (nearly) all. Data show, in contrast, a nice spread on our locus of causality measure (M = 2.71, SD = 1.06, Skewness =.01). Similarly, normal distributions were found for Stability (M = 2.84, SD = 1.03, Skewness = .27), Control (M = 3.61, SD = 1.22, Skewness = .34), and Responsibility (M = 2.74, SD = 1.05, Skewness = .16).

So what is going on here? There is hardly any variation in the causes offered by the respondents, yet there is great variation on both ascription of where the origin of the cause lies (Locus and Stability) and on interpretation (Control and Responsibility). Does time pressure not mean the same thing from one participant to the next? Further analysis of precise wording of the causes is helpful here. While 46% of our respondents simply mentioned too little time, or time pressure as the main cause for incorrectly solved puzzles, others were more elaborate and/or offered additional reasoning. Nineteen percent of our participants specifically state that there was not enough time *for them* to solve the puzzles, e.g., "It all went way too fast. I focused on each puzzle for too long. That's just how I am, I tend to read questions twice. That's how I was taught it. I just want to do everything the right way."; "The time given was far too low for me to be able to solve these puzzles"; "I was working too slow". Some participants offered further rationale for incorrect puzzles, that either do (22%), or do not (3%) relate to strategies used. Examples of the former are "[Time pressure] therefore I hurried too much"; "[Time pressure] which caused some miscalculations on my part."; "I did not pay enough attention, and my concentration was a bit low, and I did not have enough time." Examples of the latter are "[Time pressure and] what was meant by the number of steps required was unclear."; "It was unclear whether the answer had to be typed, or clicked by mouse. And time was too short." Finally, some (3%) flat out deny anything was wrong with their puzzle abilities: "I usually knew the correct answer, but then there was just not enough time to type it in.", or "I typed in the answers, just right after the time stopped."

Thus, time pressure only ("Time pressure") was mentioned by 46%, too little time for me ("Time for me") by 19%, and time pressure and strategy ("Additional strategy") by 22%. Time pressure and additional non-strategy reasoning was mention only by 3%, as were denials of the fact that anything was wrong (3%). As mentioned before, reasons unrelated to time pressure were mentioned by 7%.

We then further analyzed effects of the way time pressure was addressed in wording of the main cause on causal ascription and interpretation. Categories Time pressure (n = 31), Time for me (n = 13), and Additional strategy (n = 15) were included in our analyses. The other three categories were excluded from further analyses, as each held too low a number of cases (2, 2 and 5 respectively). [2]

ANOVA shows that Time pressure yielded less internal Locus (M = 2.05) than both Time for me (M = 3.46), and Additional strategy causes (M = 3.20, overall effect F (2, 56) = 14.72, $p < .0001$). Time pressure (M = 2.48) and Time for me (M = 2.56) yielded less Stable ascriptions than Additional strategy (M = 3.58, overall effect F (2, 56) = 6.82, p = .002). Additional strategy yielded higher Control (M = 3.09) than Time pressure (M = 2.16), with Time for me scores in between the two (M = 2.28, overall effect F (2, 56) = 3.91, p = .026). Similarly, Additional strategy yielded higher Responsibility (M = 3.20) than Time pressure (M = 2.23), with Time for me scores in between the two (M = 2.92, overall effect F (2, 56) = 6.07, p = .004).

Results show that one obvious error cause (time pressure) was recognized by almost all participants. This cause, however, yielded striking differences in causal ascription and interpretation among participants. With the same concrete error cause in mind, some think they were in control, were responsible, while other just as easily deny control and responsibility. Irrespective of agreement on realistic, obvious causes for their errors, people thus make sense and interpret similar causes differently. We therefore propose that researchers carefully reconsider measures of attributions that offer concrete causes (e.g., effort, ability, and chance to name some commonly used ones), as it is unsure what any particular cause means to any particular person.

Although the participants in the current study were right to blame their poor results on time limits set by the experimenter, variations in interpretation were striking. There is no reason to assume that acknowledgement of control and responsibility for errors in organizational settings does not vary just as much. An obvious cause for error occurrence in organizations (e.g., work environment, task characteristics, time pressure) could then prompt either constructive or destructive error handling, depending on interpretation and sense-making by organizational members. As it has been established that the causal attribution process affects error handling (Homsma *et al*., 2005; Van Dyck, 2005a), organizational members are best encouraged to interpret situations in ways that entail higher control and responsibility for what went wrong.

The current study suggests that causal ascription and interpretation of error causes should be considered carefully, and separately, and that causes offered should not be taken at face value. As it is difficult to imagine how organizations would benefit from their members' rebuttal of control and responsibility of errors made, we believe the causal process should be high on the agenda of work and organizational psychologists.

Notes:

1. These data are derived from Van Dyck (2005b). This, more elaborate paper does not consider the error causes offered in our open-end

question. Rather, quantitative scores on attribution variables, error approach and self-focussed attention form the focus.

2. Analyses yield similar, and equally strong results if all six categories are included.

References

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman.

Edmondson, A. C. (1996). Learning from mistakes is easier said than done: Group and organizational influences on the detection and correction of human error. *Journal of Applied Behavioral Science, 32*, 5-28.

Frese, M. (1995). Error Management in training: Conceptual and empirical results. In C. Zucchermaglio, S. Bandura, & S. U. Stucky (Eds.), *Organizational learning and technological change.* New York: Springer.

Göbel, S., & Frese, M. (1999). Persönlichkeit, Handlungsstrategien und Erfolg bei Kleinunternehmern. [Personality, strategies and success in small-scale entrepreneurs]. In: K. Moser, B. Batanic, and J. Zempel (Eds.), *Unternehmerisch erfolgreiches Handeln. [Successful entrepreneurial action].* Göttingen: Hogrefe.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

Homsma, G. J., Van Dyck, C., De Gilder, D., Koopman, P. L., & Elfring, T. (2005). *Overcoming errors: A closer look at the attributional mechanism.* Manuscript in preparation.

McAuley, E., Duncan, T. E., & Russel, D. W. (1992). Measuring causal attributions: The revised causal dimension scale (CDSII). *Personality and Social Psychology Bulletin, 18*, 566-573.

Shallice, T. (1982). Specific impairments of planning. *Philosophical Transactions of the Royal Society of London, Series B. Biological Sciences, 298*, 199-209.

Van Den Heuvel, O. A., Groenewegen, H. J., Barkhof, F., Lazeron, R. H. C., Van Dyck, R., Veltman, D. J. (2003) Frontostriatal system in planning complexity: A parametric functional magnetic resonance version of Tower of London task. *NeuroImage, 18,* 367-374.

Van Dyck C. (2005a). *Error Approach and Reinforcement Effects Disentangled: Confounds of the Field Tested in the Lab.* Manuscript in preparation.

Van Dyck, C. (2005b). *The role of self-focused attention in error handling: Precursors and effects.* Manuscript in preparation.

Van Dyck, C., Frese, M., Baer, M., & Sonnentag, S. (in press). Organizational error management culture and its impact on performance: A two study replication. *Journal of Applied Psychology*.

Weiner, B. (1986). *An attributional theory of achievement motivation and emotion*. New York: Springer-Verlag.
Weiner, B. (1980). *Human motivation*. New York: Holt, Rinehart and Winston.
White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66,* 297-333.
Zemeckis, R. (Producer/Director), Starkey, S. (Producer), & Rapke, J. (Producer). 2000. *What lies beneath* [Motion picture]. United States: Dreamworks.

Cathy Van Dyck, *Vrije* Universiteit, Amsterdam, c.van.dyck@psy.vu.nl
Gert J. Homsma, *Vrije* Universiteit, Amsterdam.

The authors wish to thank Susanne S. Laverman for collecting the data.