

**THE USES OF FORESIGHT IN EVERYDAY LIFE:
A survey of the available research into the capability of foresight**

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ABSTRACT: The ability to use foresight in order to make wise or prudential choices is one of the most powerful capabilities of individuals. Theories of how this capability, however, arises in individuals appear to have been largely ignored. This paper surveys the known research into the brain/mind processes that are relevant to the foresight capability. It identifies the likely cognitive and affective process that could be the antecedents of foresight in individuals. It identifies areas where further research is needed. It also suggests that the research scope needs to be broadened to consider the approach of other schools of psychology.

Introduction

In the preface of his book, *The Foresight Principle*, Richard Slaughter describes the present reality of planet earth as one of declining natural systems and a human species on the edge of survival. He goes on to say that 'however the human race chooses to deal with this difficult time the answer will, I feel, be bound to involve foresight'¹ Webster's dictionary defines foresight as, first, 'an act or the power of foreseeing, prescience', second, 'an act of looking forward', and third, 'action in reference to the future, prudence'. Foresight is not a new thing, it is expressed in traditional sayings such as 'look before you leap,' 'forewarned is forearmed' and 'a stitch in time saves nine.' As truisms those sayings show how employing foresight prevents unnecessary risks, creates self-protective readiness and conserve energies and resources². Yet how much do we really know about the capability of foresight? Does foresight necessarily arise from a consciousness of time? Is all future sense foresight? If we wanted to 'cultivate' foresight, could we? This paper will survey what is broadly known about the brain/mind processes that contribute towards creating the conditions for a foresight capability and it will also highlight where further research is needed.

The 'Science' of Time vs. 'Social Construction' of time

The survey begins with a consideration of the problem regarding a concept of time. There is a significant difference between how the physical and social sciences conceive of time. Kenneth Denbigh says that physics treats all 'parts' of time as if they were on a par with each other. It also does not consider that time has an intrinsic direction and thus it treats event sequences as being reversible. It offers no distinction between 'time forward' and 'time backward.' Further, physics makes a study of those constant and changeless items from which an understanding of nature emerges³. Thus the physical sciences see change over time as a temporary state of fundamental particles. Time is neutral without any qualitative element to it. It is really not a significant factor in much of the work of the physical sciences.

Time is however a very different conception for the social sciences. First, humans experience time through their emotions. The past can be perceived as regret, disappointment or pleasure. The future can be felt as volition. Thus time is constructed by an individual cognitive process and social processes rather than being a neutral element. Second, once a person perceives something then it cannot be 'unperceived.' Time does have an intrinsic direction forward and is not reversible. Last, unlike the entities studied by the physical sciences, living things have an innate power to initiate action, to create change, through the agency of time⁴. Therefore it can be said that living things interact in the construction of time.

It would therefore appear that there is a conflict between the 'fact' of time and the 'feeling' of time. If the Western worldview is dominated by a 'scientific' viewpoint then is time seen from this perspective? What are the impacts on people, who experience time through emotions, if they live in a society which only recognises the 'fact' of time? Denbigh quoted Karl Popper as suggesting that 'an explicit theory of time . . . to look upon oneself as possessing a past, a present and a future is fundamental to a sense of personal

identity'⁵. As each individual is aware of his own history he also becomes aware of the history of others as well. This is perhaps a necessary condition for cultural evolution. A person has obligations towards the histories of those that will succeed him and thus has an obligation to plan for the future. Does this mean that personal identity and cultural evolution could be affected by the viewpoint of time employed by a society? Does the capability of foresight arise from cultural evolution? Is a 'scientific' worldview antithetical to foresight?

No relevant research could be found which might shed light upon the previously mentioned questions. Perhaps those questions are philosophical matters and thus the answers will not be found in the sciences. As Slaughter observed, the qualities of foresight (foreseeing, prescience and prudence) are not qualities that late industrial cultures have been well known for⁶. It would seem likely that the cultural impact of the scientific worldview of time will play some part in the present lack of societal foresight. How and to what extent is not known at present.

What has been researched in some depth is the psychology of time perspective and its impact on human behaviour. At the outset it must be said that the psychology of foresight specifically, and how it might differ to other psychologies of time perspective, has not been researched. Specific research into the cognitive processes of foreseeing, prescience and prudence is needed. There is however a body of research from which hypotheses about the foresight capability can be conjectured. The survey will now focus on that research.

Future Time Perspective – an overview

A very important element in a person's foresight capability will be their Future Time Perspective (FTP). L.K. Frank was one of the first psychologists to consider that there was a developmental process that occurred with regard to an individual's orientation towards future goals. With it, an individual had the ability to take anticipated outcomes or consequences of behaviour into account. 'The life-space of an individual, far from being limited to what he considers the present situation, includes the future, present and also the past. Actions, emotions and the morale of an individual at any instant depend upon his total time perspective'⁷. Later research found that 'an individual's future time orientation develops gradually to become a relatively stable personality characteristic in terms of a general capacity to anticipate and enlighten the future, including a cognitive elaboration of plans and projects and reflecting the degree of involvement and engagement in the future'⁸. In the research this is referred to Future Time Orientation (FTO).

Some researchers consider that difference between FTP and FTO is that FTO is considered to represent a person's preferred mode of thought and behaviour, whereas FTP refers to a person's cognitive understanding of expectations of the future. Much of the relevant research referred to in this survey is studying the cognitive understanding of FTP, although some researchers consider the two terms

interchangeable. There is an obvious need for clarification of this point. If there were a difference between the two concepts then it would be useful to know how the two might interrelate.

FTP represents the present anticipation of future goals. Research has found that some people have a short FTP and they create most of their goals in the near future. Only the present and very near chronological future forms the temporal world in which they live. Whatever is after this is not considered. Other people have been found to have a long FTP. They have many more long-term than short-term goals. Their temporal world extends into the distant future and they have no problem being motivated by events or outcomes in the rather distant future⁹. One can conclude that possessing long FTP would have a strong correlation with having a foresight capability.

FTP has also been found to contain a cognitive and dynamic personality characteristic. The cognitive characteristic is seen as, not only understanding the immediate impacts of an action, but also the long-term implications of that same action. Surely this is an aspect of prescience or foreseeing. The dynamic characteristic is to ascribe a high value to even distant goals¹⁰. While research has shown that the prescribed value of an objective decreases as the time taken to reach it increases, this decrease is less for people with long FTP. Thus a long FTP means that a person places a high value on the future. Other research has demonstrated a link between valuing the future and adaptive behaviour. Specifically, valuing the future has been linked to decreased risk taking¹¹. The cognitive aspect appears consistent with prescience and the dynamic aspect appears consistent with prudence, both of which support the apparent strong correlation between long FTP and the capability of foresight. A prima facie case appears to exist that a person with long FTP may also possess foresight. How much do we know about the development of FTP in individuals?

Generally the capability to experience time has been found to be a characteristic that develops with age¹². Also treatment programs have affected FTP in drug addicts, which tends to suggest that life conditions are also a factor¹³. Socialisation processes also seem to affect FTP. It has been demonstrated that societal future goals are integrated into the individual goals of socialised individuals, as opposed to non-socialised individuals (delinquents), so that their social group's goals for the future become theirs as well¹⁴. Research has also found cross-cultural differences in the future orientations of students in Australia, Brazil, India and USA¹⁵. Based upon this research it is considered that FTP is a flexible construct that is capable of modification¹⁶. That researcher also concludes that there is an inherent self-reinforcement in future orientation. That is the more satisfaction it gives, the more it is stimulated and developed. By this process it is considered that it may develop into the stable characteristic that Gjesme referred to in his research into FTO. This is very encouraging because it would seem to indicate that FTP could be cognitively developed and then maintained over time. If FTP is a key element in foresight then perhaps a foresight capability can be developed and maintained in individuals.

Research has also been undertaken into the dimensions of FTP. While a number of possible dimensions have been identified, five appear to be likely:

- (a) Extension, the length of future time span that is conceptualised
- (b) Coherence, the degree of organisation of the events in the future time span that is conceptualised
- (c) Density, the number of goals, hopes, fears and wishes expected in one's future
- (d) Directionality, the extent to which one perceives oneself as moving forward from the present moment into the future
- (e) Affectivity, the extent to which a person is positively or negatively disposed towards anticipated events

Extension and coherence are considered cognitive aspects of FTP; people can have an FTP that is more or less extended and coherent. Density, directionality and affectivity are the motivational aspects of FTP. The future can be experienced as more optimistic or pessimistic which in turn will affect motivation¹⁷. The problem is that research has not been undertaken into how these different dimensions may develop in individuals. There are also researchers who still theorise that, notwithstanding the dimensions that have been identified, FTP is still a unitary construct¹⁸.

The ambiguity in whether FTP is unitary or multidimensional, and in the dimensions themselves, has meant that a wide number of measurement instruments have been used in FTP research. In his study of FTP instruments, Gerald Seijts discovered a wide number of instruments that did not provide consistent results. Similar results were not obtained through retesting with the same instrument and the different tests have a low convergence factor¹⁹. The survey discovered a wide range of instruments that were employed by researchers to measure FTP. It was noted that in much of the research cited a unique instrument appeared to have been used by the researcher. The instruments developed by other researchers were not employed. Thus it is very difficult to correlate findings across the different pieces of research, let alone compare results. As yet there is no sense of the 'best' instrument to use or the reliability or suitability of the different instruments. The lack of a reliable instrument to measure FTP will hold back all further work in understanding how FTP develops in individuals and how it can be influenced or shaped. There is therefore a pressing need for such an instrument to be developed, tested and promulgated.

A minor concern about much of the research is that is focussed on either finding correlation to abnormal or maladjusted behaviour or finding correlation in adolescent (school children) behaviour. Whether the correlational direction of that research or the findings from those types of research audiences means that its findings can then be applied to normal adult behaviour with equal veracity is unclear. It would be good to see evidence of some of the findings from the 'best' of the behavioural research being re-tested with different groups.

Notwithstanding the concerns raised about the measurement instruments and methodologies employed there still remains fifty years of research into FTP which has produced a wealth of information about that cognitive and affective developmental capability. The findings of much of that research would appear to indicate that FTP has a strong correlative relationship to an individual's capability for foresight. There exists an opportunity to conduct further analysis of that research, to resolve the dimensions of FTP, to design and test a reliable measurement instrument and to undertake the research to correlate not only behaviours but also to identify the antecedents and consequences of FTP.

Counterfactual thinking and the emotions of regret and disappointment

In section two, it was mentioned how the social sciences have tended to regard time as an emotional construct. One interesting area of research in this area is the work around counterfactual thought which is the process whereby current reality is changed into what might, could, would or should have been²⁰. 'Counterfactual thinking mediates effect, and through its role in assessment of causation, counterfactual thinking helps to shape the specific emotions an individual experiences in reaction to a situation'²¹. In that study the researchers made a study of the emotions of shame and guilt. Both were negative emotions but they were found to differ in the assessment of causation. Shame was related to counterfactual thought where the self is mutated whereas guilt was related to counterfactual thought where behaviour was mutated. Shame is rationalised to be the fault of the person, guilt the fault of something the person did. It is thought that shame and guilt arise when a moral or social norm is breached. Behavioural psychologists have tended to shy away from the study of guilt and shame because of their presumed link to morality, hence they have not been considered 'useful' emotions for affected utilitarian purposes.

Regret and disappointment have been more widely researched in studies on individual decision-making. Lacking the same strong link to moral and social norms these two emotions have been considered to offer greater utility for behavioural research. Studies have found that regret and disappointment are felt as a consequence of or in anticipation of, decision-making processes. The difference between the two is in the antecedents of the source of the comparison from which the emotion arises. 'Although regret and disappointment both stem from a comparison between "what is" and "what might have been" regret is assumed to originate from comparisons between the factual outcome and an outcome that might have been had you chosen another action; disappointment is assumed to originate from a comparison between the factual outcome and an outcome that might have been had another state of the world occurred'²². In terms of counterfactual thinking regret causes a mutation in personal behaviour (within one's personal control) whereas disappointment causes a mutation in the situation (outside of one's control).

This is a significant difference, as an individual will feel causation from regret but little from disappointment. Anticipated regret would cause a modification of one's behaviour ('The exam might be tough so I'd better do extra study'); anticipated disappointment will cause situation modification ('The exam might be tough but I'll assume that examiner will choose the topics that I prefer'). Given the strong

sense that a foresight capability would produce strong feelings of causality, then the anticipation of regret would seem to be the more useful of the emotions. Research has shown that when making decisions people sometimes run a sort of mental simulation of what might happen before they actually make the decision. 'When decision-makers pre-compute behaviour focussed counterfactuals, the possible future regret will be made salient, and regret aversion will be promoted'²³.

The conclusion that can be drawn from this research is that counterfactual thought processes generate specific emotions; behavioural counterfactual thoughts produce the emotions of regret or guilt and the anticipation of these emotions in the future can cause the modification of individual behaviour in the present. Thus the nature and form of an inquiry about the possible future consequences of an action would have a greater likelihood of successfully changing present actions if the inquiry was structured as a behavioural counterfactual. Further work is certainly needed in the elements that would go into structuring behavioural counterfactuals. Another point is that much of the current research appears to be based upon the study of regret and not guilt because of the presumption that the hedonic (doctrine of pleasure) value of decisions is a more useful area of research. This presumption may be correct if the decision-making process under examination is about consumer choice. For more societal decision-making issues however the social or moral value of decisions might be more appropriate. Therefore research that compared the effect of behavioural counterfactuals based upon moral norms to those based on hedonic values would also be very useful.

Self-regulatory thought and a desired future

Another area of relevant research has been in the area of expectancy effects on behaviour. Social psychologists have demonstrated a link between positive expectations of the future and health, achievement and interpersonal relationships. Simply put, if a person expects to do well in something then they do perform well in reality. This well understood link between a person's positive mental attitude and the resulting beneficial outcome forms the basis of the very popular 'self-help' literature genre. Research has also found that the form of self-regulatory thought that is employed by a person acts to moderate this expectancy-behaviour link. This research into self-regulatory thought gives additional insight into how the capability of foresight might occur in a person.

Research has demonstrated that fantasising about a positive future only means that the desired future can be mentally enjoyed in the here and now. Without the contrasted reflections of present reality there is no necessity to act. Also dwelling on impending reality without preceding it with fantasies of a positive future remain mere ruminations and also lack a necessity to act. It is only when a desired future is mentally contrasted with impending reality that a behavioural commitment to act is established²⁴. Thus three forms of self-regulatory thought have been identified. A desired future can be mentally contrasted with impending reality, indulged by ignoring impending reality or suppressed by dwelling on impending reality. Only the first of these self-regulatory thoughts seems consistent with the capability of foresight.

Further research has found that simply experiencing a discrepancy between the present and desired future does not create a felt need to act. Participants had to think about aspects of the future and aspects of the present and then mentally elaborate the discrepancy between the two before behavioural commitment was achieved²⁵.

Thus it would seem to follow that foresight could have antecedent processes of imagining a desired future, determining impending reality and then mentally elaborating and contrasting the two in order to determine the necessity and commitment to act. These would not be the only antecedents of foresight but certainly important ones because the use of foresight could not be confused with merely indulging in idle speculation or merely dwelling on the present.

Intrinsic verses extrinsic futures

The last area of relevant research examines progress at personal goals. While mere progress towards goals has been widely regarded as beneficial, research has determined that the quality of the goals is more important than speed or quantity. According to this research well being is most enhanced when people make progress in goals that are congruent with their physical or emotional needs²⁶.

One such need that was identified is autonomy, i.e. the sense of feeling self-determined and choiceful in one's behaviour. People experience greater adjustment and satisfaction when they engage in behaviour for autonomous reasons, i.e. because of interest or conviction more than for controlled reasons, i.e. externally or internally applied pressure²⁷. In addition to the person's reason for goals is the content of the goals themselves. Goals aiming towards self-acceptance and community involvement are termed intrinsic goals because they are associated with a move towards actualisation and integration²⁸. Goals aiming for financial success and popularity have been termed extrinsic goals because they are focussed on rewards and other people's opinions. Research has shown that people orientated towards extrinsic goals evidence greater psychological maladjustment while people focussed towards intrinsic goals evidence greater well being²⁹.

This research culminated in the findings of Sheldon & Kasser that people who strive for more autonomous reasons, or whose strivings are taking them towards possible intrinsic futures, scored higher on many different trait indices of health and adjustment³⁰. These findings have led to the idea that personal growth is measured by the attainment of autonomous/intrinsic future goals and by progressing, these people provide themselves with 'psychological nutrients'³¹. These 'nutrients' create the conditions for psychological growth. The relevance that this has for foresight capability is that it has been noted that foresight is commonly associated with well being, good sense and learning over time. Those aspects of foresight seem to ring true with the properties of autonomous purposes directed towards intrinsic futures. Thus it seems reasonable to conclude that foresight would be more likely directed towards the achievement of

autonomous/intrinsic goals than it would be directed towards controlled extrinsic goals. However this supposition is not directly supported by any of the research that this survey identified.

The nature of the studies in ‘time’ themselves

Finally a few words on the nature of the psychological studies of the aforementioned aspects of future time. Almost all the research that this survey has cited belongs to the school of cognitive psychology which would see concepts such as future time perspective, counterfactual thinking and self regulatory thought as part of the brain/mind’s functional structure. From this schema we have cognitive elements, affective elements and behavioural elements wherein elements (such as future time perspectives) can be seen as part of an integrated whole. There are other schools of psychological thought that could also shed valuable insight into this issue but their research has not been uncovered by this survey³².

Neuropsychology would research the concept of foresight from a biological and brain structure perspective and would attempt to demonstrate how the capability exists within the human neural system. Foresight could be found to be a function of chemical biology and its imbalance could be treated by pharmacological means. None of the research identified explored any aspects of this field.

Psychotherapy would approach the question from an introspective and interpretive method based within each individual. Thus foresight may be a collective capability which is adapted according to an individual’s experiences. Certainly some of the research identified by the survey would indicate that some pathological behaviour could be related to the absence of some of the characteristics of foresight.

A social psychological approach would regard foresight as being embedded in the cultural meaning of the individual’s society. The research of Sundberg into FTP did indicate that there did appear to be an ethnic aspect at play³³. However there are many other aspects of social culture that the research is silent upon (e.g. gender, political, ecological) and that could produce insights into the capability of foresight.

Developmental psychology would approach foresight as being part of a developmental process with different constructive process at each level. Some of the research identified did indicate that time perspective did appear to be a developmental process in children but it is silent on that developmental process continuing in adults. Investigated from this perspective foresight might be found at higher stages of development and wellbeing.

Employing the Eastern and contemplative tradition might locate capabilities such as foresight as part of increased modes of awareness and that specific injunctions (e.g. meditation) could evoke or encourage this capability.

Conclusions from the survey

Four questions were posed at the beginning of this paper. How much do we really know about the capability of foresight? Does foresight necessarily arise from a consciousness of time? Is all future sense foresight? If we wanted to 'cultivate' foresight, could we?

Foresight has not been specifically studied in any of the research identified by this survey. Research into future time perspective, counterfactual thinking, self-regulatory thought and autonomous purpose and intrinsic goals however have given a basis upon which the other questions could be answered. It also gives an idea where further useful research could be undertaken. The research would tend to indicate that foresight is an individual cognitive characteristic that affects the behaviours of planning, goal setting and decision making. There is also considered to be a link to general well-being but this finding is based upon research that shows maladaptive behaviours appear to correlate to a shortcoming in the characteristic. It appears to develop with age but it has not been researched as a developmental psychological process in adults. Cross-cultural issues will also affect it.

The researched thought processes that seem closest to foresight are behavioral counterfactual thinking that produces feelings of regret or guilt about future consequences and self-regulatory thought. Then these fantasised futures and impending reality are mentally elaborated upon with the production of behavioural commitment. The content of foresight would seem likely to be about goals for autonomous purposes directed towards intrinsic futures.

Foresight does not necessarily arise from a consciousness of time. Long future time perspective would seem to be a core element in foresight and FTP seems to be a multidimensional construct. All future sense is not certainly foresight. Furthermore the future time sense that individuals 'feel' is not the future time sense that the 'hard' sciences measures as 'fact.' It would appear from this overview that the research has not been performed (within cognitive psychology) that would provide a systematic basis for the cultivation of foresight in individuals. The antecedents of future time perspective, counterfactual thought and self-regulatory thought are not known. If it is a developmental process in adults then it is feasible that antecedent conditions that are propitious to foresight could be created.

Towards a research agenda

The following questions have arisen from this survey. The addressing of these questions would go a long way towards creating a research agenda into the capability of foresight.

- Is there a difference between the concepts of future time perspective (FTP) and future time orientation (FTO)? If there is a difference then how do the two concepts interrelate? How should future research deal with these two concepts?

- Is FTP, or FTO, a unitary or multi-dimensional construct? If it is multi-dimensional, what are the dimensions? How do the dimensions develop in individuals? Are they interrelated?
- Can a reliable instrument to measure FTP, or FTO, be designed that is suitable for use with a wide range of audiences? Can the instrument be tested to correlate FTP, or FTO, to behaviours and antecedents?
- Can feelings of guilt be compared to feelings of regret to determine their impact upon behavioural counterfactual thoughts? Can behavioural counterfactuals be structured to encourage foresight?
- Is there a correlation between autonomous/intrinsic goals and FTP or FTO? Are future autonomous/intrinsic goals correlated with psychological development in individuals?
- Is the emotionally felt experience of time in individuals affected by an emphasis on a more 'scientific' viewpoint of time?
- Does FTP or FTO change as part of an overall psychological process in individuals or is a stable construct?
- Are any aspects of FTP or FTO affected by different social and cultural conditions?
- Do increased modes of awareness arising from specific injunctions, like meditation, affect FTP or FTO?

In addition to pursuing these questions a research agenda should also explore the adoption of an 'integral' framework to the study of capability of foresight. Ken Wilber proposed such a framework³⁴ demonstrated how the distinct elements of psychology could be brought together in a holistic framework. Adopting a similar approach to the study of foresight capability would make a significant contribution towards establishing the conditions necessary for holistic foresight. Holistic foresight at the social level is ultimately what is required by the human race if it is to deal successfully with the problems it currently faces.

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